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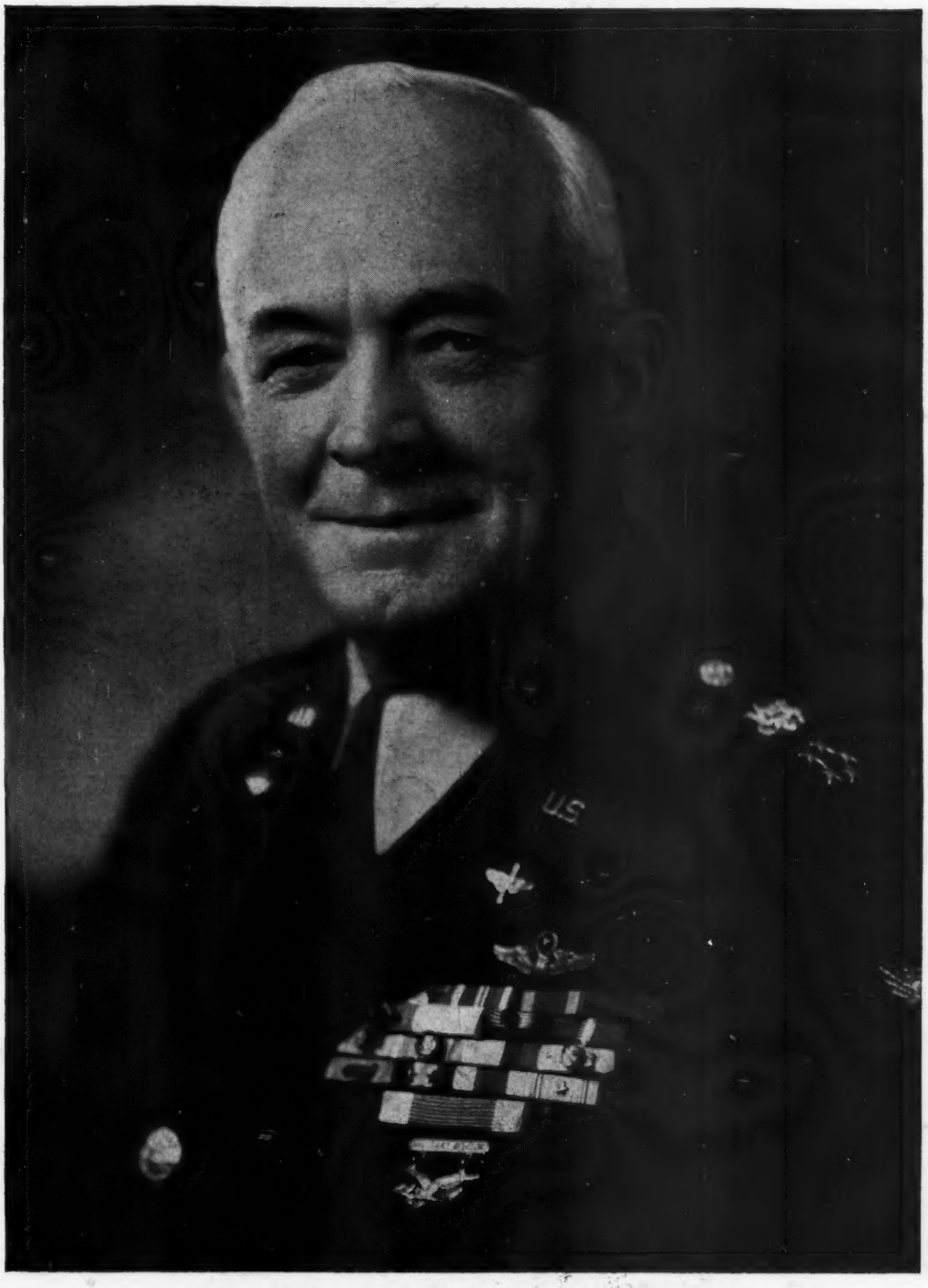
THE OFFICIAL JOURNAL OF THE AIR FORCE ASSOCIATION, FEBRUARY, 1950



General of The Air Force Henry H. Arnold 1886-1950

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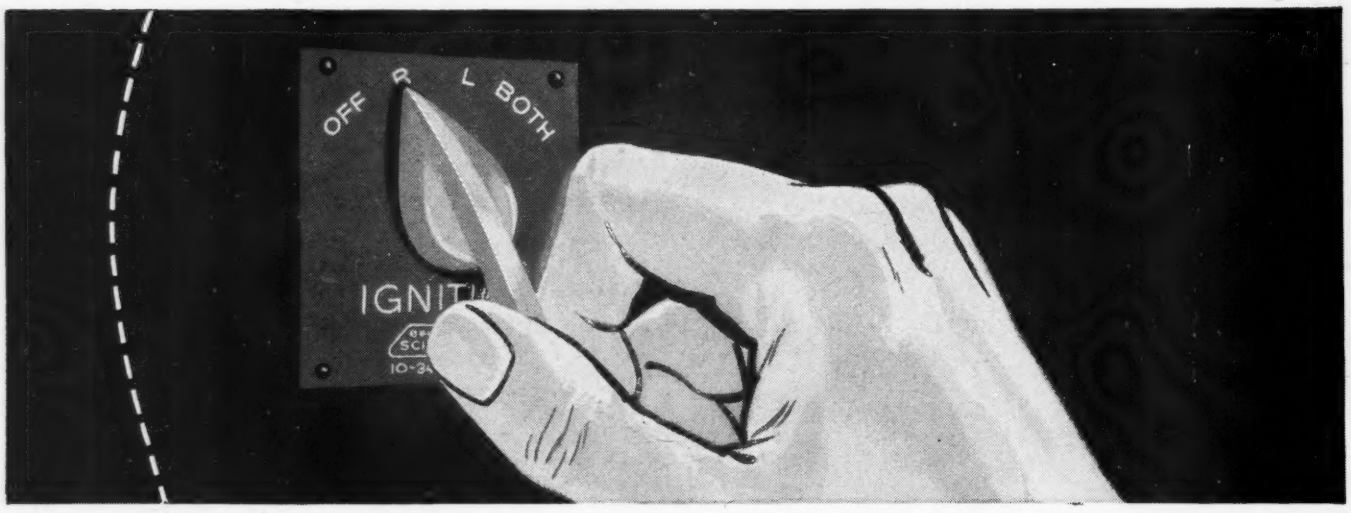

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Latest model Boeing B-50 Superfortress, successor to the renowned B-29

Longer legs for a guardian of the peace

This is one of the stalwarts of U. S. air defense. It's the Boeing B-50D Superfortress in full fighting trim — ready to fly wherever it may be needed to keep the peace. It has a top speed of over 400 miles per hour.

External fuel tanks, mounted under the outer wingtips, now make the 14,000-horsepower Superfort useful over greater distances than ever before. In this way its normal cruising range has been increased to more than 6,000 miles without refueling.

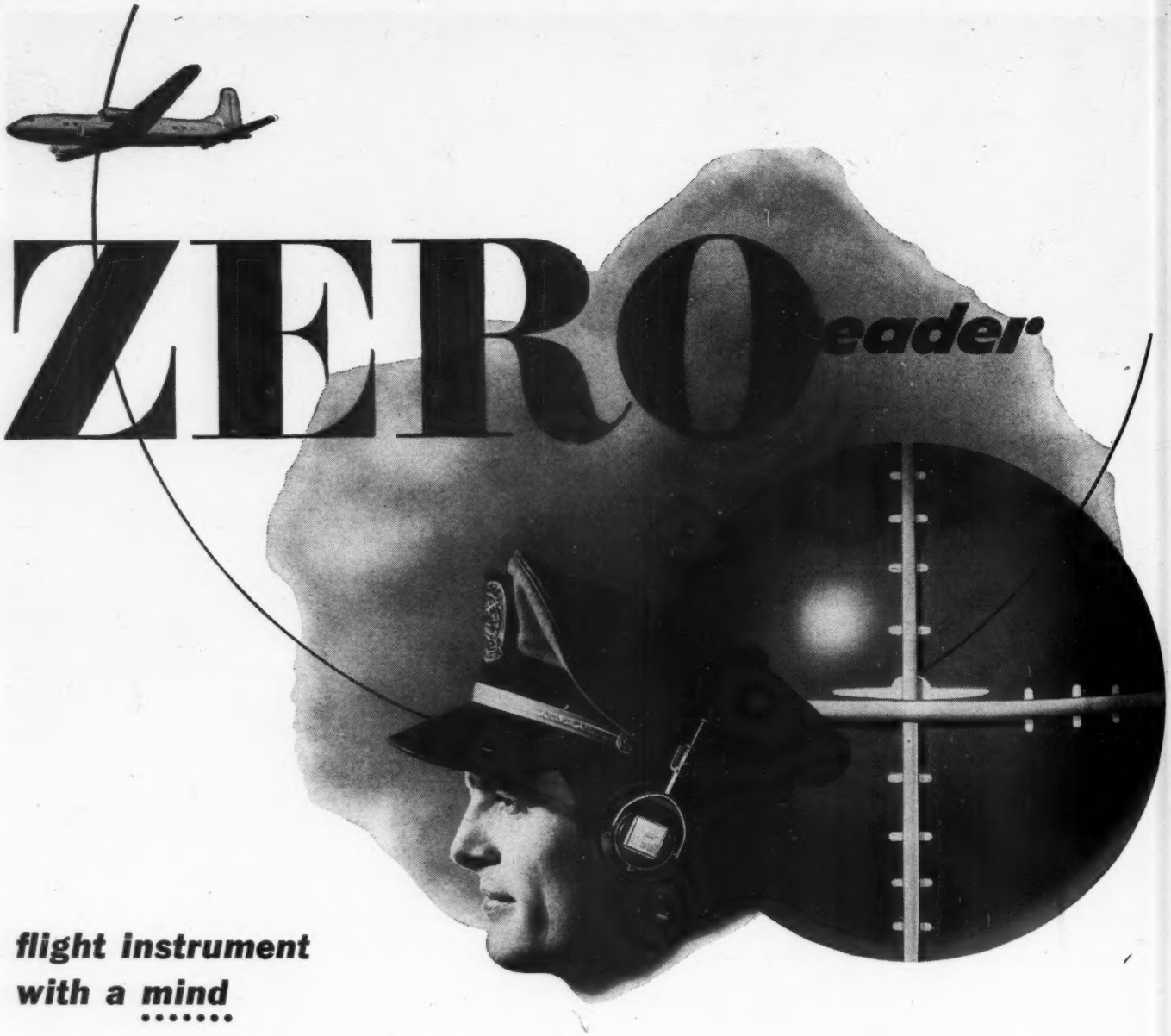
As an alternative, these wing tanks may be detached and replaced by bombs, increasing the total bomb-load to 28,000 pounds.

The B-50D is an excellent example of the steady improvement in aircraft design that never ceases at Boeing. Successor to the indomitable Boeing B-17 and more directly to the B-29, famed for its wartime performance of the "impossible," the B-50D has behind it a broad range of 4-engine experience possessed by no other plane builder in the world.

Working in close co-operation with the Air Force, Boeing engineers continually find new ways to add speed, range or striking power without halting production. That's why bombers that come off the line today are more potent weapons for world peace than they were a year ago — and why they will be still better tomorrow.

Built by Boeing for the U. S. Air Force are the B-50 Superfortresses, C-97 Stratofreighters and B-47 Stratojet bombers; for the U. S. Army, L-15 Scout liaison planes. For the world's leading airlines, Boeing is building fleets of the new twin-deck Stratocruisers.

BOEING



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The Sperry ZERO READER* is a new type of gyroscopic flight instrument. It combines attitude, altitude, heading and radio path information on a simple two element indicator which tells the pilot exactly how to move the flight controls of his airplane.

● Developed by Sperry with the encouragement and cooperation of All-Weather Flying Division, USAF and the Air Transport Association, the ZERO READER takes its place among other Sperry "firsts"— the Gyro-Horizon, Directional Gyro, Gyrosyn Compass and Gyropilot. Like these precision instruments it reflects in its performance the laboratory research and careful flight testing which have contributed to marked advancements in instrument flying.

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VOL. 33, NO. 2 FEBRUARY, 1950

AIR FORCE

THE OFFICIAL JOURNAL OF THE AIR FORCE ASSOCIATION

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THIS IS AFA

- The Air Force Association is an independent, non-military, airpower organization with no personal, political or commercial axes to grind; established and incorporated as a non-profit corporation February 4, 1946.

- **Active Members** are men and women honorably discharged from military service who have been assigned or attached to the US Air Force or its predecessor services, or who are currently enrolled in the Air Force Reserve or Air National Guard. **Service Members** (non-voting, non-office holding) are men and women currently assigned or attached to the US Air Force. **Associates** (non-voting, non-office holding) are men and women not eligible for Active or Service Membership who have demonstrated an interest in furthering AFA's aims and purposes, or in proper development and maintenance of US airpower.

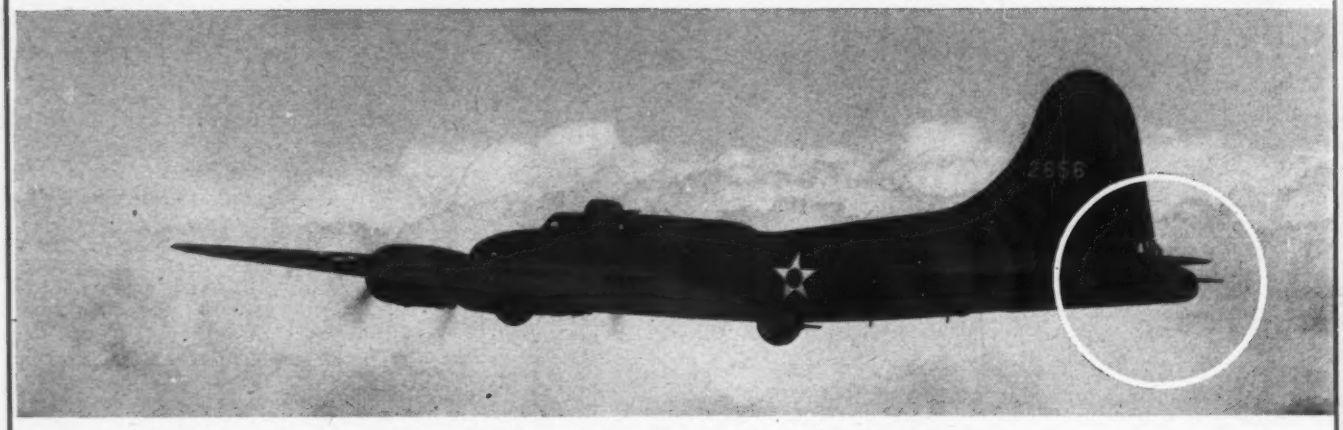
ITS OBJECTIVES

- To preserve and foster the spirit of fellowship among former and present members of the Air Force, and to perpetuate the identity and group solidarity of wartime Air Force units large and small.

- To assist in obtaining and maintaining adequate airpower for national security and world peace.

- To keep AFA members and the public at large abreast of developments in the field of aviation, and to stimulate community interest in Air Force activities and installations.

8 Years ago this month...



A B-17E—the first production line Fort with tail turret

. . . the Tail Turret was introduced in the Air Force

It was about February 12, 1942 that tail guns were first used in combat in the SW Pacific. You remember the story. Two and a half months of dueling with Nip fighters made it painfully clear that what our bombers needed worst of all was a stinger in the rear to keep Hirohito's boys at a respectful distance. The first "turrets" were installed on the spot with hack saws and blow torches, but they served the purpose until the factories back home could make the change on the production line. It didn't take long before the air crews learned to depend on the tail gunner just about as much as they did on their old Pratt & Whitneys.

A small point perhaps, but it illustrates how rapidly changes are made in military aviation and how quickly they become commonplace.

It illustrates also, the necessity of staying constantly alert to new requirements and new fields of exploration. An Air Force that lags even in such a seeming detail as a rear turret may one day pay for its delinquency with its life.

This is one of the jobs for which AIR FORCE ASSOCIATION was founded. To keep the American people fully advised, within security restrictions, of new developments and requirements in military aviation so that they, through their elected legislators, can build an adequate, modern Air Force geared realistically to the mission assigned to it.

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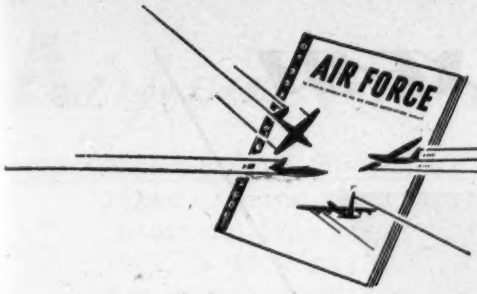
The more members in our club, the louder our voice, and the more people we can reach. Do your part. Clip the coupon here and see that it gets in the hands of someone eligible to join—either an Air Force veteran or someone now on active duty. Do it now; before the week is over sure. It's not a job—it's a privilege. And how about getting an AFA squadron going in your community? It only takes twenty members to qualify for an official charter. Write AFA headquarters for details.



RENDEZVOUS

Where the Gang gets together

REUNION: The 69th Bomb Sq., 38th Bomb Gp. will hold a reunion at the Wardman Park Hotel, Washington, D. C. on March 11 and 12, 1950. All those interested please contact *Walter Abel, 39 East Somerset St., Philadelphia, Pa.*

INSIGNIA WANTED: Looking for cloth group insignia of 34th Bomb Gp and a similar insignia for the 18th Bomb Sq. of the same group. Need these to fill out my collection. *Robert B. Deloye, 28 Marian Ave., Pittsfield, Mass.*

HEP CATS: Would like to rendezvous with any 491st Bomb Gp. boys who were at Metfield or North Pickenham, England, especially those who flew extra missions with the dance band. *Elwood M. Jones, Jr., 676 West Livingston, Banning, Cal.*

MEMORIAL: About five years ago, members of the Second Air Division, donated money for a war memorial to be erected in Norwich, England. We were promised a souvenir folder on this memorial, but so far I haven't heard or read anything about it. If any one knows what the situation is, would appreciate hearing from him. *Steve Zabrecky, 529 Jackson St., Bethlehem, Pa.*

LUPER'S TROOPERS: Would like very much to hear from anyone who was in the 457th Bomb Gp., 750th Bomb Sq., in the 8th Air Force. Particularly eager to contact Lt. Edward Stevens and crew members of the "GI Virgin I and II." Would also like to know if our former CO, Col. Jim Luper is still okay. *Charles W. Johns, Box 95, Butler, Kentucky.*

URGENT: Trying to locate men who served with me in the 578th Sq., Gp. 1208 at Miami Beach, Fla. around October 1942 who knew of my bad feet condition. *Benjamin Cohen, 265 East Burnside Ave., New York 57, N. Y.*

SWAP: Former RAF member, attached for more than a year to the 27th Fighter-Bomber Gp. in Italy would like to swap his copy of the British magazine "Aeroplane" each month for a copy of "Flying" or "American Aviation". Anyone interested please contact *Jack Collingwood, 434 Walnut St., San Francisco, Cal.*

MORE REUNION: A reunion of combat crews of the old 641st Bomb Sq., 409th Bomb Gp. will be held in Kansas City, Mo., February 25th and 26th, 1950. Will all members please contact me as soon as possible. *Dale E. Watt, 1020 North Watts, Portland 3, Oregon.*

LORD, OH LORD: Trying to locate James D. Lord of Philadelphia who went through Sioux City radio school and then to Alaska. The Philadelphia Chamber of Commerce and the Post Office department couldn't locate him. *Eddie S. Makowski, R. D. 1, Endicott, N. Y.*

CHICAGO REUNION: All former members of Bombardier Class 45-12B, and additional interested personnel, not on present mailing list, please contact the undersigned in reference to a reunion planned for Chicago in May. We want to see everyone there. *Leonard Kreft, Route 1, Box 195, Palatine, Ill.*

URGENT: Does anyone know the whereabouts of Roger Van Gorder, commissioned a second lieutenant and sent to Europe on detached service in November 1942 for about two months. I believe he could assist me in proving that I have overseas service that wasn't entered on my service record. *James P. Collings, Route 2, Shelbyville, Ky.*

HEY VANDY: Does anyone know the Dearborn, Mich., address of Julian C. Vandenbroek, an old O.C.S. buddy of mine who sends Christmas cards with no return address? *Byron C. Singletary, 725 North Walnut St., San Jose, Calif.*

MORE REUNION: Former members of the 409th Bomb Gp., 9th AF, are planning a reunion in Chicago July 29-31, 1950. Ex-members of this outfit please contact *Bernard Bernstein, 7626 North Eastlake Terrace, Chicago, Ill.*

438TH: Would like very much to hear from any of the 438th boys who have a little time to write. *George R. Frese, 1606 South Center, Bloomington, Ill.*

MISSING: Does anyone have any information concerning Sgt. Gooley of the 90th Bomb Gp. He was reported lost on a furlough plane on June 6, 1945, between Mindora and Luzon in the Philippines. His father would also like to obtain a copy of the Group History which was printed in Australia. Send any information to *John F. Gooley, 100 West Atlantic Ave., Haddon Heights, N. J.*

SONG IN THE AIR: Please make public my plea for words and if possible some clue as to the songs any AF guy or gal might remember. We are trying to preserve the songs of the AF before they're forgotten. *Paul A. Marriott, 211 Insurance Bldg., Ft. Worth, Texas.*

LOOKING FOR SOMEONE? ANY ANNOUNCEMENTS TO MAKE? WRITE RENDEZVOUS AND RENDEZVOUS READERS WILL WRITE YOU.

MIRACLE DRUGS CANNOT CURE THIS SICKNESS

We only wish there *were* a miraculous drug to stop a man from worrying.

Hundreds of thousands would buy it, because constant worry over money literally makes sufferers *sick!*

It's a sickness, however, that miracle drugs cannot cure.

Yet . . . something 'way short of a miracle can!

That's saving! Saving money . . . the surest, wisest way. With U. S. Savings Bonds.

All you do—if you're on payroll—is join your company's Payroll Savings Plan. Or, if you're in business or a profession, enroll in the Bond-A-Month Plan at your local bank.

You'll be pleased to see those savings grow. Ten years from now, when your Bonds reach maturity, you'll get back $40 for every $30 you invested!

Is it peace of mind you want?

Start buying Bonds today!

AUTOMATIC SAVING IS SURE SAVING— U.S. SAVINGS BONDS

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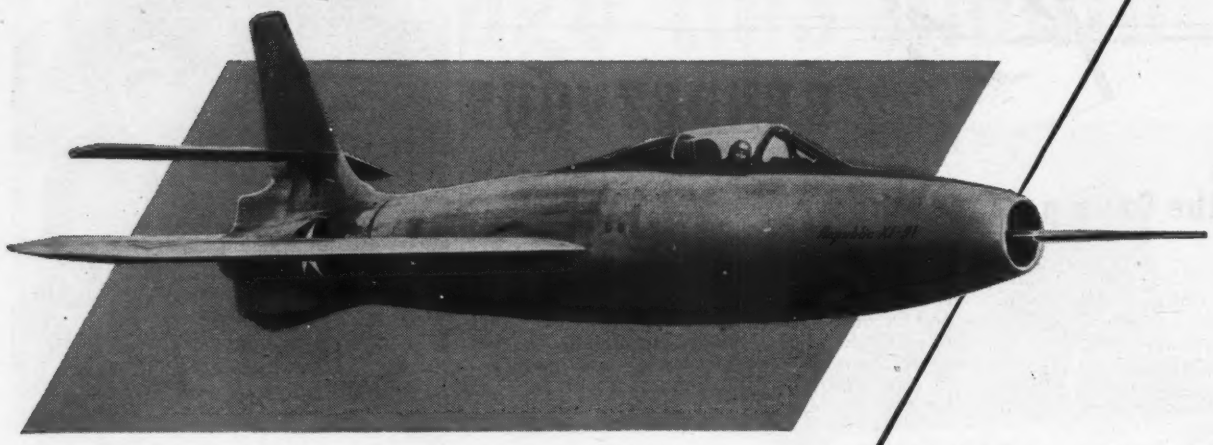
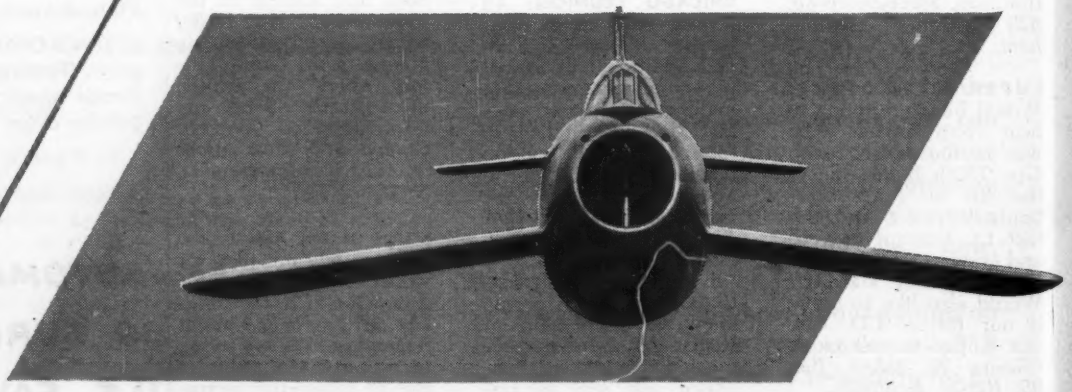
THIS IS THE XF-91



Made by the makers of the mighty Thunderbolt . . . which set enviable records in the hands of Air Force pilots during World War Two . . . and later, builders of the F-84E Thunderjet now being manufactured in quantity for the Air Force . . . Republic is justifiably proud of the XF-91 presently undergoing flight tests at the Muroc Air Force Base in California. ¶ Conceived and produced to perform as a high speed . . . high altitude interceptor . . . with both turbo jet and rocket power . . . the final acceptance specifications of this great ship will, we are confident, prove to be one more vital weapon in Democracy's arsenal.

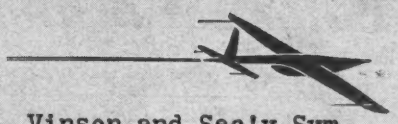
. . . Republic Aviation Corporation, Farmingdale, Long Island, New York



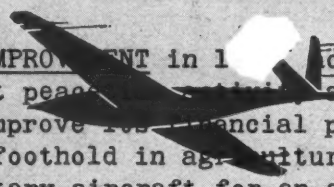
REPUBLIC AVIATION

Makers of the Mighty Thunderbolt • Thunderjet • XR-12 • XF-91

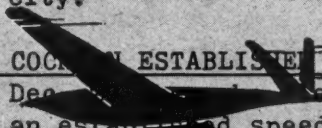
Airpower in the News



WITH CONGRESS BACK ON THE JOB, the new year opens with Rep. Vinson and Sec'y Symington "going along" with a "48-Group" Air Force which Mr. Truman recommended in his FY 1951 budget message. The budgeted $4,433 billion for the USAF in 1951 is $158 million less than the President asked for 1950. Total funds for new AF aircraft for fiscal '51 are $1350 million including impounded funds of 1950. (Orders by USAF out of 1950 funds reported so far are for 1050 airplanes, as compared to the peak of over 5,000 per year required for the original 70-Group program.) The message also recommended an "AF Components" budget of $187,770,000, giving USAFR 68,627 men on drill-pay basis with 900 aircraft in operation while ANG's total personnel would be 49,500 with 2500 operation planes.



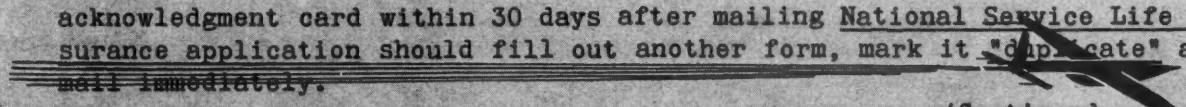
MOST BRANCHES OF AVIATION EXPERIENCED FURTHER IMPROVEMENT in 1949, according to AIA. The airlines reported their greatest peacetime activity and profits, the manufacturing industry continued to improve its financial position, and personal aviation established a stronger foothold in agricultural markets. Industry produced approximately 2700 military aircraft for an estimated total airframe weight of 28 million tons, three million more than in 1948. Production of airline transport aircraft in 1949 amounted to less than 120 units. In the personal aircraft field, production amounted to about 3,400 units in 1949, compared to 1948 production of 7,039 units. The sales volume for 1949 for all airframe, engine and propeller companies is estimated at $1,700,000,000. The industry employed during 1949 approximately 218,000 people, slightly over 168,000 in airframe plants, somewhat over 41,000 in engine plants and about 8,000 in propeller manufacturing . . . "Civil aviation is one of most important reserve components in any broad view of national defense," Asst. AF Sec'y Stuart told recent Wings Club Defense Forum, NY City.



AVIATRIX JACKIE COCHRAN ESTABLISHED NEW WORLD SPEED RECORD for propeller driven planes on Dec. [illegible] flew her F-51 plane around a 500 kilometer closed course at an established speed of 444 miles per hour . . . Ex-56th Fighter Group Ace, Rodney F. Joslyn, of Langhorn, Pa., won aerobatic championship on last day of air maneuvers at Miami in January. Crash landing of ANG F-80 jet almost stole Miami show . . . Collier Trophy was won this year by Radio Technical Commission for Aeronautics for its life-saving plan designed to make virtually crash-proof every airplane flight in nation within a few years. . . AF's Lieut. Col. Emil G. Beaudry of Manchester, N. H., was awarded MacKay Trophy for 1948 rescue flight.

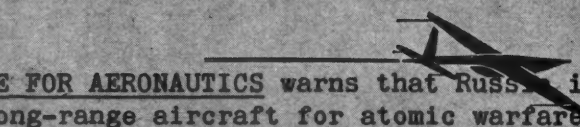
A PROPOSAL THAT CAA SPONSOR CONSTRUCTION OF NEW JET TRANSPORT and subsequent leasing of airplanes to America's scheduled airlines was voiced recently by Wellwood E. Beall, Boeing's vice-president for engineering and sales. . . Lawrence B. Richardson has been appointed Fairchild's Director of Research.

WAR CLAIMS COMMISSION HAS RELEASED FOUR FORMS FOR APPLYING FOR EX-POW BENEFITS: Application for living ex-prisoner of war benefits, for benefits by survivors of deceased POWs, for living civilian detention benefits and for benefits by survivors of civilians. Practically all time in Japanese prison camps and 90% of time spent in European camps is expected to qualify applicants for subsistence. (AFA members may secure appropriate form by requesting it from Air Force magazine.). . . AFAers who have failed to receive acknowledgment card within 30 days after mailing National Service Life Insurance application should fill out another form, mark it "duplicate" and mail immediately.



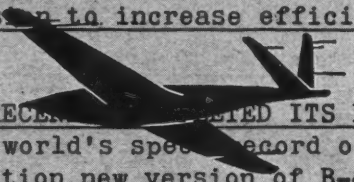
(Continued on page 8)

Airpower in the News CONTINUED



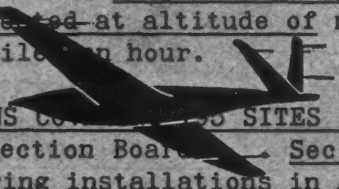
ANNUAL REPORT OF NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS warns that Russia is working hard to develop high-speed, long-range aircraft for atomic warfare . . . Meanwhile, USAF has denied recent press reports of specific speeds of X-1. Because of continuing experiments with this model, security considerations preclude specific announcement of speed, according to AF.

USAF ADOPTS NEW ELECTRONIC TRAINING DEVICE; designed to simulate all problems and flight conditions encountered by jet craft (see story page 22) . . . AF volunteers, riding in rocket-propelled sled developed by Northrop, are now duplicating airplane crashes in effort to provide greater flying safety. Experiments are being conducted at Edwards AF Base, Muroc, Calif. . . Three AF refueling squadrons composed of B-29s and B-50s have been sent from SAC to Goose Bay, Labrador, on training mission to increase efficiency of air-to-air refueling technique.



AF'S NORTH AMERICAN "SABRE" FIGHTER, YF-86D, RECE[illegible]ED ITS FIRST FLIGHT at Edwards AF Base. . . The F-86A holds world's speed record of 670.981 miles per hour. . . AF has put in production new version of B-47 jet bomber that flies at better than 600 miles per hour with range estimated at more than 4000 miles. SAC will have 2 B-47 groups under present plans. . . AF's Republic XF-91 completed first test as high altitude interceptor recently--can zoom above 45,000 feet in less than three minutes. . . USAF expects to have three intercontinental (B-36) bomb wings operational; a fourth, 4th Bomb Wing, location not disclosed, partially equipped with B-36s; and two operational intercontinental reconnaissance wings by end of fiscal 1951.

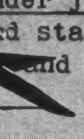
NAVY HAS AWARDED INITIAL PRODUCTION CONTRACT FOR P5M-1, "rough-water" seaplane designed primarily for anti-submarine warfare, to Glenn L. Martin Co. of Baltimore. . . Navy's new winged aircraft tow target has been successfully flight-tested at altitude of more than 35,000 feet and at speeds in excess of 450 miles an hour.



RECOMMENDATIONS CONCERNING [illegible] SITES IN 34 STATES HAVE BEEN RECEIVED by AF Academy Site Selection Board. . . Sec'y Symington and Bob Hope spent Christmas weekend touring installations in Alaskan area. Last year they spent Christmas Season with personnel on Berlin Airlift. . . Department of Defense Housing Commission made an inspection tour of Alaskan housing during first half of January. . . Regular military air service to South America was re-established in January by MATS. . . Ass't AF Sec'y Harold C. Stuart has been named AF member of Research and Development Board, Dept. of Defense. . . Proposals authorizing military personnel to accept foreign decorations for participation in Berlin airlift and extending time in which certain decorations might be awarded by U.S. for services in World War II have been submitted to Congress by Sec'y Johnson.

ALL OFFICERS OF REGULAR MILITARY SERVICES HENCEFORTH WILL BE ASSIGNED TO AT LEAST A TWO-YEAR TOUR OF DUTY WITH THEIR CIVILIAN COMPONENTS, to the fullest extent feasible, according to a policy recently announced by Dept. of Defense as a "move for unification."

ANDREWS AFB IS TO RECEIVE 23 OF NEW SHIPMENT OF F-84C AIRCRAFT for use by 113th Fighter Gp., DC ANG. The remaining 60 jets are being split equally three ways and distributed to Guard units in Wichita, Kans., Spokane, Wash., and Detroit, Mich. . . Spokane AF National Guard plans show with thunder jets . . . ANG units of 1st AF located in N. Y., N. J., and New England states will be given summer training during two two-week periods in July and August of 1950, ConAC has announced.



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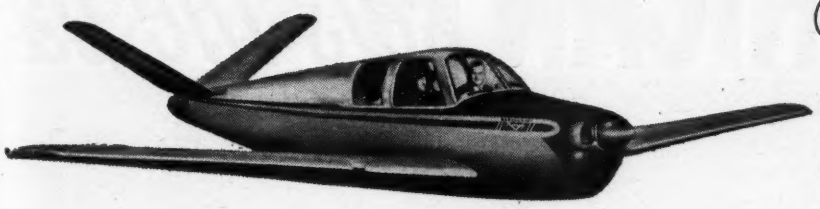
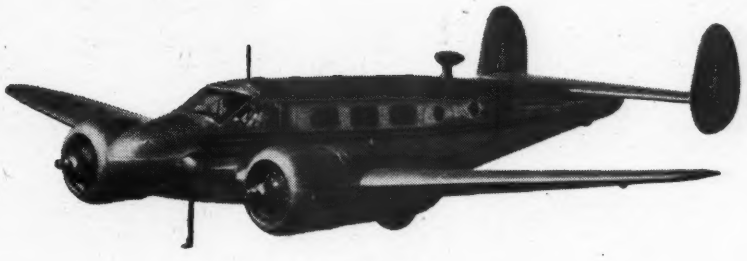


Beechcraft 35

The Beechcraft Bonanza cruises at 170 mph, carries four people in its comfortable cabin. Range is 750 miles; top speed, 184 mph. It combines safety, ruggedness, comfort, economy, speed and performance — is equipped for day, night, and instrument flight.

Beechcraft 18

The twin-engine Beechcraft Executive Transport is relied upon all over the world for fast, dependable performance. This 200-mph plane carries 7 to 9 passengers in luxurious comfort — can be operated readily out of small fields.



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. . . and Abroad — ANGOLA—SOREL, Luanda . . . ARGENTINA—Will L. Smith, S.A., Buenos Aires . . . BELGIUM—Intair, Ltd., Antwerp . . . BRAZIL —Companhia Carnasciali Industria e Comercio, Rio de Janeiro . . . CANADA—World Wide Aviation Agencies & Sales, Inc., St. Johns, Quebec . . . CHILE—Bunster y Bezanilla, Ltda., Santiago . . . CHINA—Wah Chang Trading Corporation, Shanghai . . . CUBA—Dr. Gustavo S. de Bustemante, Havana . . . EGYPT—Misrair, S.A.E., Cairo . . . FRANCE—Victor Helfenberger, S.A. Somatex, Paris . . . INDIA—Indamer Co., Ltd., Bombay . . . IRAN—Habib Sabet, Teheran . . . MEXICO—Jorge Pasquel, Mexico, D.F. . . . MOROCCO—Airco, Tanger . . . NETHERLANDS—Technische Handelmij, Hollinda N.V., The Hague . . . PARAGUAY—Nicolas Bo, Asuncion . . . PERU—Inter-Continental Trade Co., S.A., Lima . . . PUERTO RICO—West Indies Airways, San Juan . . . SIAM—Siamese Airways Company, Ltd., Bangkok . . . SOUTH AFRICA—Aviation Corporation of Africa (Pty) Ltd., Johannesburg . . . SWITZERLAND—Groupement Suisse de Representation Aeronautique, Neuchatel . . . TURKEY—Kontioto Turkish Company, Ltd., Istanbul . . . URUGUAY—Pike and Co. Ltd., Montevideo.

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Hap's Veterans

The Air Force veteran lost a great friend last month.

Hap Arnold, more than any regular in high station we have ever known, believed in the civilian soldier and civilian war worker.

Perhaps he appealed to the non-regular for the way he cut across many fetishes of rank which the civilian soldier always found hard to understand, and broke through the chain of command to seek out the man actually doing a job rather than the man taking credit for it, and for his supreme confidence in the enlisted man.

Once in the middle of the war when in a special hurry to attend a conference at Bolling Field he was confronted at the gate by a corporal on guard duty —a corporal not far removed from his draft board. The corporal demanded that this five-star general show proper credentials. The old man couldn't spare the delay, explained who he was and rushed past the guard. "I don't care who you are," said the corporal. "Orders are orders. One more step and I'll shoot." The general held his steps and the corporal lowered his rifle. The corporal saw the credentials, and got a dressing down that made military history. When General Arnold reached headquarters he gave the CO an order: "Make that man a sergeant."

Elsewhere in this issue we offer a glimpse of the Old Man in his role as a "human bulldozer" fighting for airpower. That's part of the story. The other part: how he fought for the care and well-being of his men. Fought for flight pay, flight surgeons, rest camps, air force hospitals; how he established new programs for demobilization and rehabilitation; how he regularly sent letters to relatives of Air Force dead, and cards at Christmas-time to Air Force wounded in hospitals; how he set up the Air Force Aid Society to administer relief to Air Force men and women and their dependents in time of need; how in many different ways he made a program of action out of his motto: "The Air Force takes care of its own."

At war's end General Hap Arnold was asked, "What is airpower's greatest strength for the future?" he answered, "Its two and a half million men who will go back to their communities and help give us the support airpower has needed for so long."

General Arnold conceived of the Air Force Association as the spokesman and organized force of these Air Force veterans; he kept in close touch with AFA leaders, served as Honorary Commander for life of AFA's San Francisco Squadron, sent annual messages to AFA's national conventions in lieu of personal attendance which was forbidden by doctor's orders, and proudly wore the AFA pin (his last picture shows it in his lapel).

When they laid the Old Man to rest with highest military honors last month at Arlington National Cemetery, Air Force Association, designated by the US Air Force to represent Air Force Veterans, attended the services in a delegation of nearly 100 members from nine states, and sorrowfully but proudly paid its respects.

Production Line Crisis

At the beginning of the war, faced with the task of overcoming Germany's tremendous lead in airpower development, General Arnold was asked how his pint-sized, plane-poor organization could hope to meet the challenge. "We'll call in the businessmen," he said. "The American businessman can beat the hell out of Hitler."

In World War II our businessmen did just that, outproduced the enemy and converted America into an "Arsenal of Democracy." But Hap Arnold has also said, "The principles of yesterday no longer apply. We must think in terms of tomorrow." He repeatedly warned that in a war of tomorrow America, for the first time in her history, could expect to be hit early and hard, and hit where it hurt, at home. And he concluded that American businessmen could not look forward to the time lag they enjoyed in World War II to gear up their production lines, a lag which had a lot to do with beating Hitler.

The tragedy of the moment is that we have far better yardsticks with which to judge our airpower needs than were ever available to General Arnold, and have the experience of the recent war to profit from. And yet we are short-changing ourselves with inadequate production lines.

By yardsticks we mean, once again, the recommendations of the Finletter Commission and the Congressional Air Policy Board—recommendations based on Air Force and aircraft industry needs, assuming certain world conditions.

It would be folly to assume the world situation is any better than when these distinguished business and Congressional leaders made their exhaustive studies into the airpower problem. Russia's possession of the atomic bomb, key to the Finletter timetable, has become a fact well in advance of the date estimated. Russia's rearmament program is even more immense than we had imagined. China has been lost. Our British ally, in economic crisis, can be counted on for less help than we might have expected. With one eye on our yardsticks and another on the 1951 fiscal defense budget which has been proposed to Congress, we find a production line shortage which cannot be reconciled by any military standards. In brief, the number of planes provided for the US Air Force during fiscal 1951 under the proposed budget totals only 43% of the planes recommended by Finletter for "minimum security" under the 70-group program. Actual procurement of Air Force planes budgeted for fiscal 1951 totals only 27% of the 1951 procurement needed to meet 70-group build-up requirements. It can be argued that numbers of aircraft are not an exact index to Air Force strength, and the B-36 program can be cited to show that this is true. But the old problem of keeping production lines at minimum activity for possible rapid expansion—that problem remains with us, B-36s or no. The increased efficiency of new planes hardly compensates for the marked discrepancy between yardstick and budget. It can also be argued that planes are getting larger and more expensive—and certainly the per plane cost problem is a major Air Force headache. So it prompts us to look at the

GET A MEMBER FOR

airframe poundage destined to come off the production lines.

Here we come to the two plans drawn up by the Congressional Air Policy Board. The first plan provides for an air force capable of mounting "sustained offensive action upon attack." To achieve this objective, the board determined, our Air Force production lines demand 86,000,000 pounds of air-frames during fiscal 1951. The proposed budget calls for only 21,300,000 pounds of air-frames in the same period—or merely 24.7% of the requirement. The board's second plan, which would provide for an Air Force equipped to withstand attack but not to retaliate with a "sustained offensive," called for 45,000,000 airframe pounds in fiscal 1951, against the 21,300,000 pounds provided by the proposed budget.

Thus, in the next fiscal year the Air Force can procure only 47.3% of the airframe pounds required for a program to withstand the shock of attack, much less retaliate. After reviewing the yardsticks and analyzing 1951 budget figures this writer has come to these rather terrifying conclusions:

- We do not believe there is a plan in existence for defense of the US, even assuming wholesale damage from initial attacks, which our responsible military leaders believe to be practical with only a 48-group Air Force.
- We do not believe this 48-group Air Force, if we count noses of men and planes, measures up to 48 combat effective groups.
- We do not believe the annual procurement of planes required for this so-called 48-group Air Force would be maintained under the proposed 1951 defense budget.
- We do not believe the present trend in scaling down aircraft procurement will permit more than 40 Air Force groups by 1954.

Hap's Challenge

General of the Air Force Henry H. Arnold had a certain genius for predicting things to come. But his closest associates know that he never dreamed the American people, once they had experienced national security through a strong war-built Air Force, would permit that security to dwindle away. And he would be the first to warn that inadequate aircraft production lines jeopardize national security. We have noted elsewhere this month that Hap Arnold left a legacy to the present day Air Force in the form of a challenge to accept and pursue new methods and new weapons regardless of past attachments. He also left a legacy to the Air Force veteran—to carry on the fight for adequate airpower. For Air Force Association it is no less a challenge. J. H. S.

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The Raider is the answer to the military requirement for an airplane capable of providing air lift into short unimproved fields in advanced areas. With three-engined reliability and a payload capacity of 8000 pounds, it can land men, vehicles, munitions and supplies "up front"—where they are needed "mostest."

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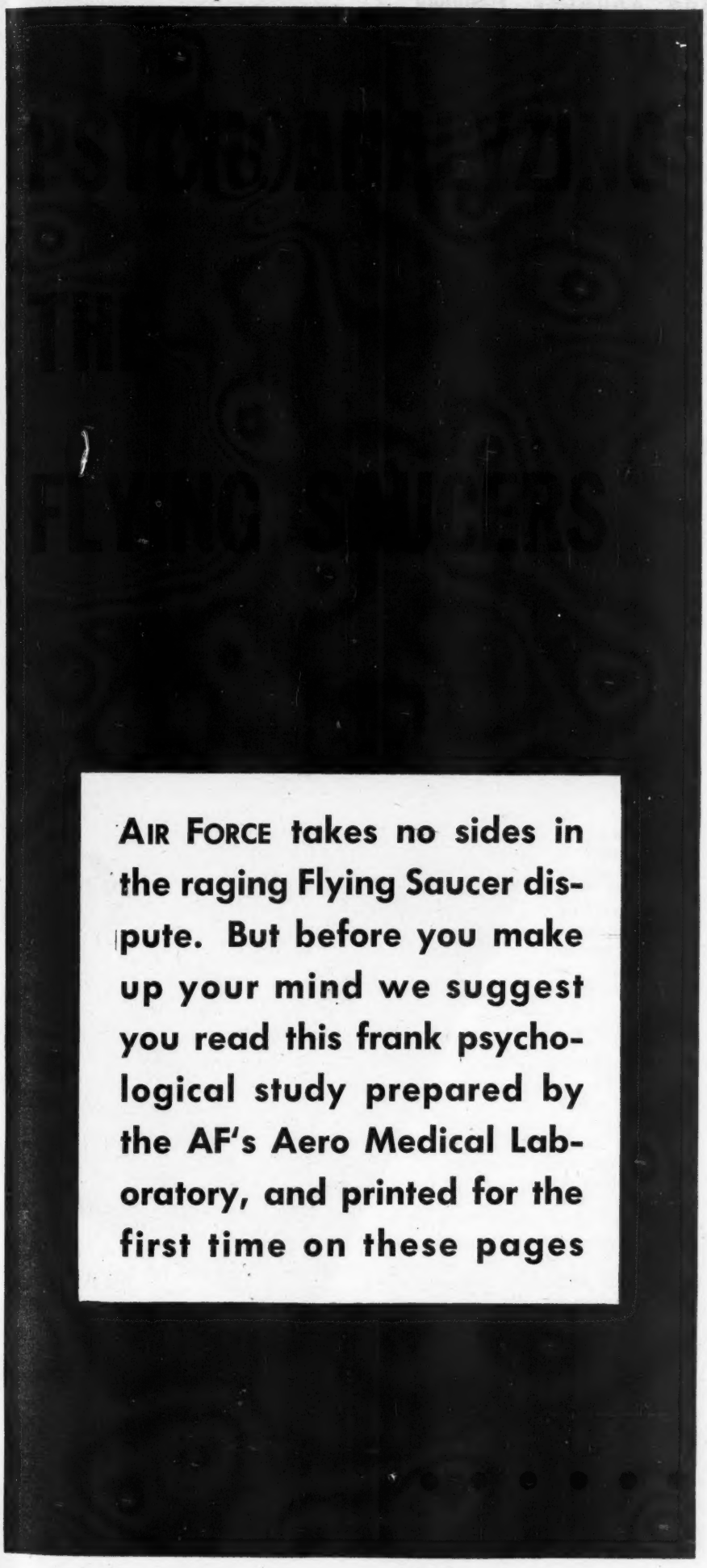


AIR FORCE takes no sides in the raging Flying Saucer dispute. But before you make up your mind we suggest you read this frank psychological study prepared by the AF's Aero Medical Laboratory, and printed for the first time on these pages

AIR FORCE
FEBRUARY, 1950

By this time you, as an average citizen who for two and a half years has read and been told more stories about Flying Saucers than you can remember, have probably arrived at one of three broad opinions:

1. Flying Saucers are the product of optical illusions, or of demented imaginations—or they are actual and known objects that have been erroneously (if honestly) identified.

2. Flying Saucers *might* be real, or they might not. The evidence you have seen doesn't permit of positive conclusion.

3. Flying Saucers are *real*, period.

The purpose of presenting the following report of the Aero Medical Laboratory (an extract from the USAF's official Flying Saucer study) is not to wean you from any of the above conclusions you have already adopted. Unlike some publications, AIR FORCE has arrived at no conviction. We have studied both official and non-official reports. In one—the official one—we seemed to detect a slight pre-determination to index the saucer reports under headings of already known phenomena, or types of illusions. In certain non-official studies there was an even more discernible determination to ignore "logical" explanations in favor of the

more glamorous presumption that the weird craft were the real McCoy. This very pre-determination might (on the one hand) have built a 2500 mph interplanetary rocket out of a common fireball in the mind of the individual making the investigation. On the other hand conclusive evidence of the actual existence of the ships might just as easily have been dismissed as the product of the seventh bourbon by an investigator of opposite belief. It's a tough thing to analyze. Take an ex-pilot of Boise, Idaho, the facts are indisputable. On July 4, 1947, Arnold and his crew watched from their plane window for ten minutes as two groups of objects described as "thin and smooth on the bottom and rough on top" skirted the hills ahead of them. To Arnold the evidence was conclusive. The guy is reportedly only one jump ahead of a nervous breakdown right now, trying to persuade the authorities to accept his story. Yet in its official summary the Air Force *weighs* Arnold's account with these words. "Since the sighting occured at sunset when light conditions change rapidly and illusory effects are most likely, the objects could have been ordinary aircraft, balloons, birds, or pure illusion. Insufficient information." Who is in error in evaluating what was seen is impossible to say. Was it Arnold who AFA's own Tom Lanphier knows and vouches for as a completely honest, conscientious individual, or was it the Air Force?

Of course there is the possibility—remote perhaps—that deep in its heart the Air Force is not nearly so convinced that the whole thing is a dream as it pretends. This would explain in part its calm announcement that further investigation would be abandoned since it was doubted that any more delving would add materially to the information already at hand. To some this might seem like an ostrich and the sand. Maybe it's more like calling off the hounds. If, in truth, the AF still has some suspicions it would be quite logical for them to try to set the public's mind at rest by every legitimate means so that officials could continue their inquiry in their own quiet way. This, of course, is a broad and perhaps wild assumption. But this is a wild business.

One thing, we believe, (and perhaps only one) can be stated for sure. No further debate over the phenomena already observed is going to resolve the matter to the satisfaction of more than a few people. No re-evaluation of the evidence so far gathered (be it "conclusive" for or against) is going to clear up the mystery. The only hope of getting at the bottom of the matter lies in the public's becoming familiar with some of the things saucers might be instead of saucers, and with some of the psychological tricks of illusion, *so that in the future* more candid, more educated observations may be made. If honest men, fully acquainted with the pranks of optical illusion, and with the physical characteristics of astronomical phenomena *still* believe they see saucers, then we had better give the matter more careful attention.

It is for the purpose of acquainting its readers with some of the involuntary caprices of the human eye and brain that AIR FORCE offers the following "Psychological Analysis of Reports of Unidentified Aerial Objects." It was written as a part of the USAF's official report and has just been declassified.

Psychologists have long known that human perception is fallible. In fact, part of the science of psychology is concerned with the measurement of errors of observation, and with the discovery of the conditions and laws that govern such phenomena.

It is the purpose of the present report to analyze the observations of unidentified flying objects in order to see to what extent these reports can be explained in terms of known psychological facts and principles.

A word of caution must be injected at the outset. Certain conditions are necessary for drawing valid scientific conclusions. These conditions are largely lacking in the case of the data available on unidentified flying objects. It is impossible to say with any assurance what any particular individual in this series of reports was actually observing at any particular time. It is only possible to examine the accumulation of available evidence or the accumulation of all reports of a given class (e.g. all reports from supposedly competent observers) and to consider them in a statistical sense. If certain characteristics appear repeatedly in reports from different people it may be possible to infer casual factors.

It will never be possible, on the other hand, to say with certainty that any given observer could not have seen a space ship or an enemy missile, or some other object. It will only be possible to estimate the probability that he could have seen such things.

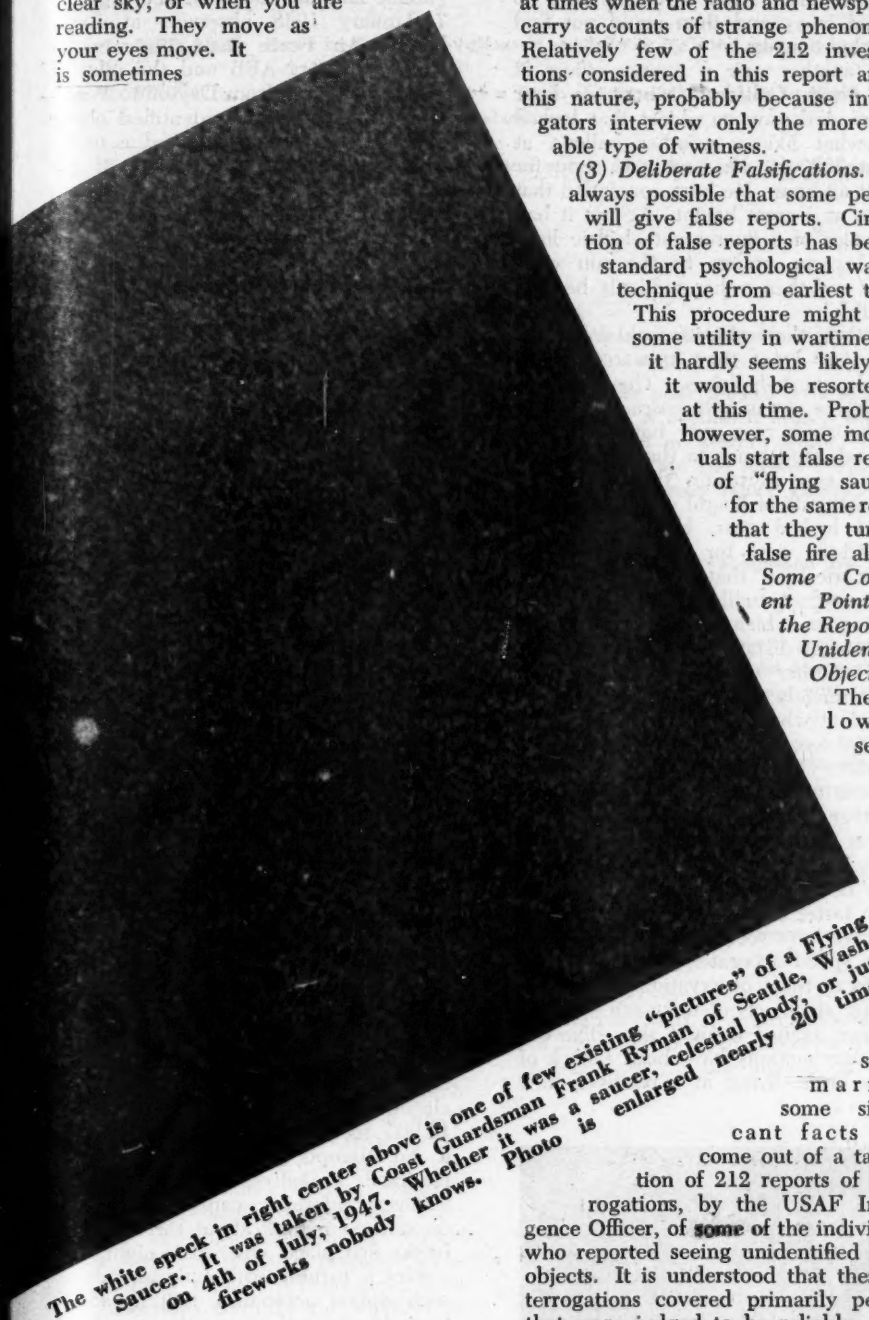
The principal hypothesis to be examined is that reports of unidentified flying objects have the characteristics that would be expected if they were cases of failure, on the part of typical normal individuals, to identify common or familiar phenomena.

There are three broad classes of mistakes in human observations. These are the following: 1. Misinterpreting the nature of real stimuli. 2. Mistaking unreal (imaginary) stimuli for real ones, and 3. Deliberate falsifications. Each of these are considered briefly:

(1) *Errors in identifying Real Stimuli.* All normal, intelligent people experience certain errors of observation. The moon appears much larger on the horizon than when it is high in the sky. A stick looks bent when one end is in water. Distant objects appear relatively close in clear, desert atmosphere. A small point-source of light, if viewed in a dark room, will appear to move about in strange gyrations, even though it is actually motionless. This is called the autokinetic illusion.

Visual stimuli origination within the eye itself also give rise to mistaken observations. Muscae volitantes or "flying gnats" are small solid particles that

float in the fluids of the eye and cast shadows on the retina. They often can be seen when you look up at the clear sky, or when you are reading. They move as your eyes move. It is sometimes possible also to see corpuscles or other objects that are circulating within the fluids in the retina of the eye.



The white speck in right center above is one of few existing "pictures" of a Flying Saucer. It was taken by Coast Guardsman Frank Ryman of Seattle, Wash. on 4th of July, 1947. Whether it was a saucer, celestial body, or just fireworks nobody knows. Photo is enlarged nearly 20 times.

Then, of course, everyone from time to time mistakes some more or less familiar object for another object. A probable explanation for many reports of unidentified aerial phenomena is that the object is really something quite familiar, such as an aircraft, a light, or a bird. The observer simply fails to identify it correctly. These errors arise chiefly as a result of inability to estimate speed and distance.

(2) Mistaking Imaginary for Real Events. This error of observation is usually made by children, by individuals of low intelligence (people who are very suggestible), by people who see visions, or by the mentally ill. It usually is not difficult for an expert to spot this type of person. Reports will be received by such persons especially at times when the radio and newspapers carry accounts of strange phenomena. Relatively few of the 212 investigations considered in this report are of this nature, probably because investigators interview only the more reliable type of witness.

(3) Deliberate Falsifications. It is always possible that some persons will give false reports. Circulation of false reports has been a standard psychological warfare technique from earliest times. This procedure might have some utility in wartime, but it hardly seems likely that it would be resorted to at this time. Probably, however, some individuals start false reports of "flying saucers" for the same reason that they turn in false fire alarms.

Some Consistent Points in the Reports of Unidentified Objects. The following section summarizes some significant facts that come out of a tabulation of 212 reports of interrogations, by the USAF Intelligence Officer, of some of the individuals who reported seeing unidentified flying objects. It is understood that these interrogations covered primarily persons that were judged to be reliable. Most of the 212 reports were made by pilots, non-flying officers, professional men, government employees, housewives and other supposedly dependable people.

▶ *Number of objects.* About 75% of the people who reported on the number of objects seen said that they saw only one object.

▶ *Time the object remained in sight.* About half of the persons specifying time in sight saw the object for 60 seconds or less.

▶ *Altitude and distance of the object.* Of those who estimated the distance of the object, two-thirds judged it to be more than a mile away. Ninety percent also thought that it was more than 1,000 feet high.

▶ *Speed.* About half judged that the speed was less than 500 miles an hour. The other half of the judgments varied from 500 miles an hour all the way to "terrific," "tremendous," "inconceivable" and "blue blazes."

▶ *Background against which viewed.* The great majority of observers saw the object against a clear day or night sky.

▶ *Time of day sighted.* About two-thirds as many observations were reported at night as in the day. There are, of course, many more opportunities for observing things during the day. The most popular hours were from 12 noon to 5:00 P.M. and from 7:00 P.M. to 11:00 P.M. at night. Very few (6 only) observations were made from 5:00 to 7:00 P.M., the usual hours of sunset.

▶ *Color.* Observers almost universally reported seeing a light-colored object. Thirty observers reported "white" and twenty-five said "silver." Over 70 percent described glittering, shiny, luminescent, mirror-like, flame-like or other very bright objects. Only six individuals said black or dark.

▶ *Shape.* Over half described the object as either "round," "disc-shaped," "spherical" or "circular." Other descriptions were similar. Very few observers saw any distinctive shape.

▶ *Size.* The majority of observers did not specify the objects' size. Of those who did over half said it was less than 10 feet in its largest dimension. Many compared it with a dime, a lamp, a dot, a weather balloon, a baseball, etc.

The words used by observers to describe the appearances of the unidentified objects fall into a surprisingly uniform pattern. The objects were usually reported as being far away, small, bright and without a distinctive shape. They were usually seen against a clear sky and were frequently seen for less than a minute.

First of all, it is obvious that it would usually be impossible for observers to make reliable estimates of speed, distance, or size of such stimulus objects. It is not possible to estimate accurately the distance of small bright objects viewed against a clear sky, *unless the object is identified first.* If you know beforehand that an object is a weather balloon, an F-80, or a dirigible you can estimate its speed and distance with some degree of accuracy. In such situations distance is judged on the basis of known size, and speed on the basis of an estimate of distance plus the angular change in position. It must be concluded, therefore, that most of the statements of speed, distance, altitude and size are entirely unreliable and should be disregarded. This is doubly true of observations made at night. The objects seen may actually have been at very great distances, or they may have been relatively close by. In the latter case, of course, they could also have been quite small.

Secondly, it is probable that individuals who saw objects in daylight were in many cases observing either the reflection of the sun on a shiny surface or else looking directly at a light source of high intensity. Aircraft themselves, when viewed against a clear sky, are seen as dark objects against a lighter

background unless they are reflecting the sun's rays directly. This fact was recognized during the recent war by camouflage experts who placed bright lights on the leading edges of the wings of aircraft on anti-submarine patrol in order to conceal them from the eyes of submarine lookouts. If observers, during daylight hours, were actually seeing lights, or reflections of the sun, this would account in large measure for their inability to identify the objects. On the other hand, if they were actually seeing enemy missiles, for example, the majority of reports of daylight sightings should have been of dark objects. It is possible, of course, that they may have thought the objects were bright because they expected all aerial objects to be bright.

On the basis of the evidence thus far considered, the best guess as to the nature of a visual stimulus that would elicit reports of unidentified flying objects is that in the daytime it would be the reflection of the sun from an aircraft, a wind-blown object, etc., and at night some direct light source such as an engine exhaust, the light on a weather balloon, a running light on an aircraft, a meteor, etc., or light from the ground or the moon reflected back by birds or other objects in the air.

Discussion of Several Specific Reports. Discussion of a few specific reports will serve to illustrate some of the points brought up earlier, particularly some of the factors that make observations of aerial phenomena inaccurate.

In one case a civilian employee at Hickam Field at 0900 observed what looked like a balloon with a bright object suspended below it. It was estimated to be about 6,000 ft. The bright object appeared to reflect the sun's rays at times. After a few minutes he looked away and then could not find the object again.

In another case a reserve officer at Van Nuys, California, about an hour before dark saw an object that looked somewhat like a weather balloon at about 2000 ft. He kept it in sight for about an hour. He later concluded that it was at a great height. At first it had the color of a fluorescent electric light but became orange as the sun went down and then rather suddenly became invisible.

Both of these objects could well have been just what they appeared to resemble most—balloons. The sun was low in the sky in both cases. Reflection of the sun's rays may have given an unusual appearance to the object. The second case illustrates the uncertainty of judgments of height or distance. The object looked near, but when it remained in view for an hour the observer decided that it must be very far away. Actually he probably had nothing on which to base an accurate estimate of distance.

In another case, two couples saw approximately 12 objects flying in formation at what they judged to be 2000 or 3000 feet altitude over Logan, Utah at 2230. They were judged to be about the size of pigeons and looked white. All four observers agreed that these objects looked and acted somewhat like birds but all thought they were not birds because they appeared to travel much faster than birds.

As we have seen, it is not possible to judge speed accurately under the conditions of these observations, i.e., when looking at objects of unknown size and distance against a night sky. The objects may actually have been a flock of white birds, flying at a relatively low altitude and reflecting the lights of the city.

During the same space of time (about half an hour) on the night of 7 January 1948 observers at Lockbourne Air Force Base, observers at Clinton County AFB and the pilot of an aircraft flying from Dayton to Washington reported an unidentified object in the sky. All reports agreed as to the color and general appearance of the object, and as to the fact that its light at times was visible through a light overcast. All agreed also that it was seen to the southwest. However, persons at all three locations judged the object to be *only a few miles away.* To all of them it looked motionless at times, then appeared to gain and lose elevation. A very similar object was seen by numerous persons at Fort Knox and other towns in Kentucky a few hours earlier. All saw it *in the southwest* and many thought it was only a few miles away. The Commanding Officer at Goodman Field observed it for 1½ hours, (beginning at 1445). During this time it seemingly remained stationary. It was "chased" by four National Guard pilots, one of whom crashed after having been up to 20,000 feet. It was also reported by persons in Lexington, Madisonville, and Elizabethtown.

The significant fact that emerges from these reports again is the inability to estimate distance. It appears possible that persons over parts of Kentucky and Ohio may have been seeing the same astronomical phenomena which was a great many miles away. Nevertheless each believed it to be relatively near his own location.

Another incident. A National Guard pilot returning to Fargo, North Dakota, in a F-51 at approximately 2100 hours saw a small light in the air below him. He was then in the traffic pattern. He dived on the light. The light gained altitude. The pilot "chased" it up to 14,000 feet, making various passes at it and attempts to ram it as he climbed. He finally stalled out.

Several inferences can be drawn from the several reports about this incident. In the first place, when it is night, and a pilot is turning so steeply and doing such violent acrobatics, that he sometimes blacks out, as was the case here, he would have great difficulty in knowing and reporting later what he himself was doing. The situation is very conducive to loss of orientation. In other words, it is impossible to infer from the pilot's report whether the light pursued by him was maneuvering or not maneuvering. It is quite possible that it was simply climbing steeply on a relatively straight course, such as would be taken by a lighted weather balloon.

As a matter of fact, a lighted weather balloon was released by the Fargo Weather Station within 10 minutes of the time the light was sighted by the F-51

Saucers may be imaginary, but they can't top the imagination of a pretty girl who knows a chance to get her picture taken when she sees one.

ELEVEN THINGS THAT MIGHT BE SAUCERS

1. AIRPLANES:	**Don't be fooled by reflected sunlight or by wing and tail lights.**
2. BIRDS:	**May sound funny, but a flock of large white birds in flight at night can be highly deceptive.**
3. KITES:	**Many a saucer has turned out to be a box kite that belongs to the kid next door.**
4. VENUS:	**The brightest of all planets.**
5. FIREFLIES:	**Well, could be.**
6. WEATHER BALLOONS:	**Shouldn't fool anyone with over two weeks' service in the AF.**
7. FIREBALLS:	**A type of lightning usually of egg or pear shaped form many times projecting streamers of light. A fireball is highly luminous, usually described as deep red or glaring white. It's movements are generally downward, but can follow either a straight, curved or tortuous path. It may move slowly, or "with the speed of lightning."**
8. PARACHUTE & PISTOL FLARES:	**Another category that should be easily recognized by AF veterans.**
9. METEORS:	**Commonly called shooting stars. Should be easy to spot since they move across the sky with great velocity and are highly luminous with the heat generated from friction with the earth's atmosphere. Not to be confused with . . .**
10. COMETS:	**Heavenly bodies outside the earth's atmosphere that move in an orbit around the sun and can be observed for a protracted period of time. They usually leave a long, nebulous train or tail.**
11. FLYING SAUCERS:	**Who knows?**

pilot. It is the opinion of the writer that this lighted balloon could easily have accounted for all of the pilot's observations. (It should be noted that the standard 30 inch and 65 inch weather balloons have a vertical speed of about 600 and 1100 ft./min. respectively.)

In the preceding section the hypothesis has been advanced that most reports of unidentified flying objects have been the result of persons failing to identify familiar phenomena, such as reflections from bright surfaces in the day or lights in a night sky. It is believed that this explanation will account for many of the reports. However, some reports undoubtedly have other explanation.

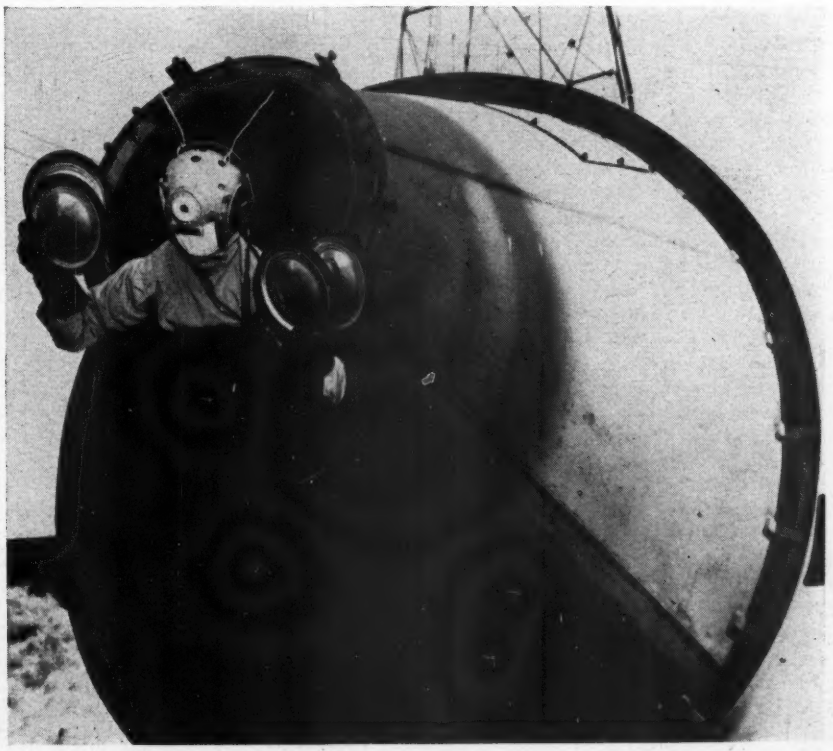
▶ *Vertigo.* The term vertigo covers a large group of miscellaneous phenomena including air sickness, disbelief in one's instruments, and partial loss of orientation. The conditions under which some of the observations of flying objects were made were such that they could have produced loss of orientation on the part of an observer. This is especially true for those experiences occurring at night and those in which attempts were made to "chase" the object. Movement is always relative. If the only outside reference is a point of light, and both the observer and the object observed are moving, it would be practically impossible under certain conditions to tell which was moving and which was not, or to separate out the two motions. It is hard enough to fly a good pursuit curve on another aircraft in good daylight, for example, much less to close on a solitary light at night. The difficulty is due chiefly to the inability to judge distance or speed of a point source of light.

▶ *Suggestion.* Suggestion works in various ways. Sensational radio and newspaper reports lead a few people to imagine they are seeing things they are not seeing. The effect on most people is to dampen their critical judgment. Under such conditions we are more likely to overlook certain factors, and find it easier to accept the suggested explanation uncritically. The expected result would be to make the reports of most observers slightly less accurate than if they had never heard reports of others seeing "flying saucers."

▶ *Precedent.* An historical precedent can be found for most errors of human observation. Although the writer has not tried to make an historical survey of reports of earlier unidentified aerial objects, he feels sure that there have been many such reports in years past, particularly during World War I.

▶ *Small Wind-borne Objects.* It is possible that some observers may have seen small objects carried aloft by strong winds, or objects dropped from aircraft. Bits of paper, small cartons, etc., may occasionally be carried to a considerable height by strong winds.

CONCLUSION. It is concluded by the writer that there are sufficient psychological explanations for the reports of unidentified flying objects to provide plausible explanations for reports not otherwise explainable. These errors in identifying real stimuli result chiefly from inability to estimate speed, distance and size.



Right is space ship sent from Mars to "bring prices down to earth." Ship is actually an alfalfa dehydrator. Mask is football helmet with wire antenna.

HOW'S YOUR AIRABILITY?

Is your town up to par in aviation development? You can find out by participating in AFA's nation-wide campaign to determine Air Age needs at the community level. It's a unique airpower program of public service.

Air Force Association's announcement that it has undertaken a huge Airability program (see January AIR FORCE) to survey the status and needs of aviation development in communities throughout the nation has drawn enthusiastic response from both AFA members and aviation leaders.

Overall objective of the program is to determine through grass roots effort by the Association, the degree to which YOUR community and communities everywhere are equipped to meet the requirements of the Air Age. Phase One of the program now getting underway will concentrate on a single goal—to learn what individual communities need if aviation is to be a stronger factor in community life. It will entail widespread AFA committee work at the local level, and interviews with aviation leaders, civic officials, business and agricultural leaders, educators and students, even housewives. Airability reports will be sent to AFA Headquarters for classification and study; then coordinated with the source for programs of action.

Delos W. Rentzel, Administrator of the Civil Aeronautics Administration, the nation's leading agency in the field of civil aviation development, has pledged the full cooperation of CAA's national and regional offices in assisting AFA members and units to carry on this important work. Willis C. Brown, Specialist for Aviation, US Office of Education, has expressed particular interest in the youth education phases of the Airability program and has supported AFA's belief that a survey of aviation education facilities and procedures can be of great value in enhancing knowledge of the Air Age. The Airports Advisory Committee of the CAA, composed of leading airport managers from throughout the country, has pledged its active support to AFA and commented enthusiastically on the scope and purpose of the new program. Local and state aviation leaders have expressed equal interest.

Although Airability operations kits are still in the preparatory stage, preliminary survey work is already underway by AFA members in some localities. And while the program lends itself to group action—though by no means is confined to it—individuals in AFA have already started sending in their preliminary appraisals of aviation development in their communities. First such report to reach headquarters came from Robert J. Bain of Williamson, W. Va., a mountain town of 8,366 people, and, as Bain realizes too well, far removed from the airlanes. "About six miles northwest of the city on the Tug River," Bain reports, "there is a cleared area approximately 100 yards wide and 900 yards long which serves as the local airport. There is a makeshift hangar big enough to house one light plane. At present only one local flyer uses this field and then only on weekends when he flies down from Charleston, W. Va." Looking over the Airability check list published in the last issue, Bain notes that, with the nearest commercial airport 110 miles away and with no flying school within a radius of 50 miles, the only flying activity evident in the entire area, outside of that lone private plane, is that of the state forest department which at certain times of the year uses airplanes for forest fire detection. And yet Williamson is a town of more than 6,000 population!

In startling contrast to this situation is the advanced aviation development at Santa Barbara, Calif., as reported by AFA member Richard A. Hardings of that city. In terms of aviation development this seems to be paradise. Here on the outskirts of Santa Barbara, a coastal city of 38,000 people, lies a 900 acre, $11,000,000 aviation development, an outgrowth of wartime military activity. As the brochure submitted by Harding for AFA's Airability file describes it: "Before the war, the city of Santa Barbara, like hundreds of other progressive communities, developed an airport. Came the war, came the US Marine Corps, came the greatest development Santa Barbara has ever seen. An Airport designed for tourist travel, almost overnight had become a complete industrial center, arranged for top-speed efficiency of operation, geared to operate as a unit with all facilities

Airpower Begins on Main Street:

What Is Rhode Island's 'Airability' in 1950? Air Force Association Will Measure State

By CLAUDE O. WITZE
Journal-Bulletin Aviation Editor
Jan. 14, 1950

Robert S. Johnson
President, Air Force Association
901 Sixteenth Street, N.W.
Washington 6, D.C.

Dear Mr. Johnson:

In the January issue of Air Force Magazine, which came to my desk this week, you outline a new "Airability Program" and call on AFA members all over the country to help evaluate America's real aviation progress. I'd like to help.

As I understand your proposa[l] involv[es] ... Oklahoma City or Phoenix or even Cleveland are years ahead of ours.

2. Have long range plans been laid for progressive development in aviation within your community?

Yes. They cost upwards ... paid to a couple of ... ing firms hired ... us some prett... Forty thou... lot of co... need. ... Dep... ca...

equipment for emergency use by police, fire and disaster units?

Not directly. The Civil Air Patrol and hired ...

In Providence an alert aviation editor welcomed Airability as a new contribution to Air Age development, gave the program detailed coverage (above) in the form of an open letter to AFA President Robert S. Johnson.

necessary for every type of manufacture, assembly and maintenance of aeronautical equipment."

From Harding's preliminary report to AFA Headquarters we learn that the airport (Class 1V, A-1) "is maintained almost exclusively by non-aviation revenues, which makes it one of the few major air facilities in the US to run on an annual net operating profit without cost to taxpayers of one cent. There are many recreational facilities at Santa Barbara Airport, including beach and boating, golf and driving range." And at first glance the city of Santa Barbara seems to be on its toes in supporting this "paradise" airport development. Harding reports the city boasts an active Airport Commission made up of businessmen who serve gratuitously; adult education classes offering ground school subjects and Link training and "open house" programs at the airport. Santa Barbara offers Air Force and Naval Air reservists and the CAP meeting rooms and classrooms for $1 per year; waives the city gasoline tax on all military aviation gasoline, and has a well defined civil defense program.

Within this wide range, represented at the one extreme by Williamson's one-plane airstrip, and on the other by Santa Barbara's $11,000,000 aviation center, the Air Force Association will carefully and systematically—guided by aviation experts at the national level—appraise community Airability in the US under a program personifying AFA's broad concept of airpower for national security and national welfare.

The close relationship between civil aviation activity and the US Air Force program—of special interest to AFA members as they inaugurate the Airability project—was reemphasized last month by Harold Stuart, Assistant Secretary of the US Air Force in a talk before the Wing's Club of New York City.

"In any broad view of the problem

(Continued on page 48)

Jet Trainer Proves Link To Future

Tomorrow's pilots will learn navigation, engine and flight control and other intricacies of high-speed all-weather jet flight without getting off the ground

By Douglas J. Ingells

A veteran of 500 jet fighter hours climbed out of the cockpit, wearing a sheepish grin.

"When that engine went out I was looking around for the seat switch to blow outta there," he said. "Then I remembered I was still on the ground!"

That's how real the world's first jet ground trainer is. Designated Air Force Type C-11 and built by Link Aviation, Inc. of Binghamton, N. Y., it is essentially three trainers in one: A flight trainer, an engine operating trainer and a radio navigation trainer. Today's pilot must be well versed in all operational problems likely to arise in jet aircraft. And this trainer can "build up" just about everything that a pilot may reasonably expect to encounter.

Once the trainee is under the hood, alone, he is at the mercy of a check pilot who sits at a big panel board of controls completely outside the trainer and "feeds" problems electronically to the trainer.

For instance, a student might be cruising smoothly at about 500 mph at 35,000 feet, when suddenly, at a flip of the instructor's switch, the engine stops. The student suspects fuel pump trouble. He pushes the trainer into a glide. When the altimeter says 19,000 feet and the Mach Number indicator reads about point four, he turns on the emergency fuel pump and cracks the throttle. The engine picks up and he's out of trouble. Then it's flak puncturing the main fuel tank. The student switches to the fuel emergency, and because there isn't much time left before his gas runs out, he heads for an airport.

Suddenly lightning flashes light up the hooded cockpit. The ship bounces around in the turbulence of a thunderhead.

In the clear again, on the final round of his landing approach the check pilot throws in one last monkey wrench by causing the hydraulic system to fail.

The student lowers the landing gear manually and follows GCA guidance until at 500 feet he "sees" the ground and proceeds to land.

All of this can happen in the new trainer which doesn't have any wings and looks more like the front end of a new automobile than it does a jet fighter.

A specific feature of the trainer is the emphasis it puts on engine operation. All the controls, instruments and indications of a high speed aircraft are included and they function as they would in actual flight. Rates of roll, climb and acceleration are faithfully duplicated and the controls are loaded so that pressures vary with airspeed.

The student must follow engine operation instructions rigidly because of the highly critical limits of the jet engines and every move is monitored by an electronic watchdog which causes failure to occur automatically if he errs in controlling the engine.

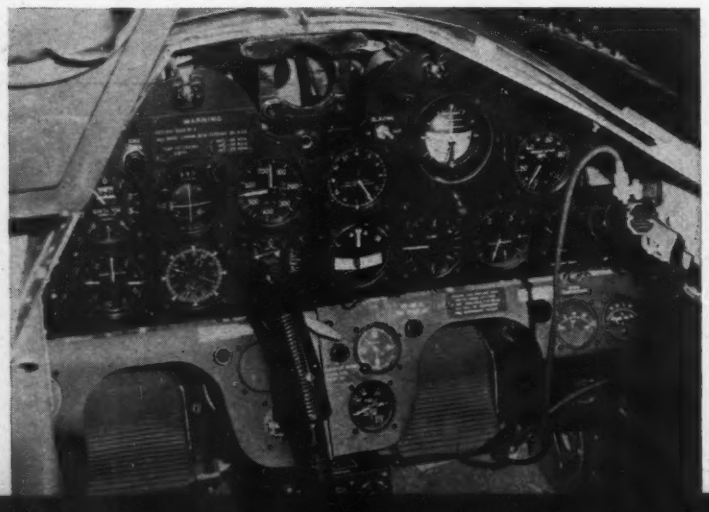
"It's a lot safer and better to have it happen here on the ground when you do something wrong," commented one enthusiastic trainer pilot, "than it is to be up there in a plane and have the thing blow up on you."

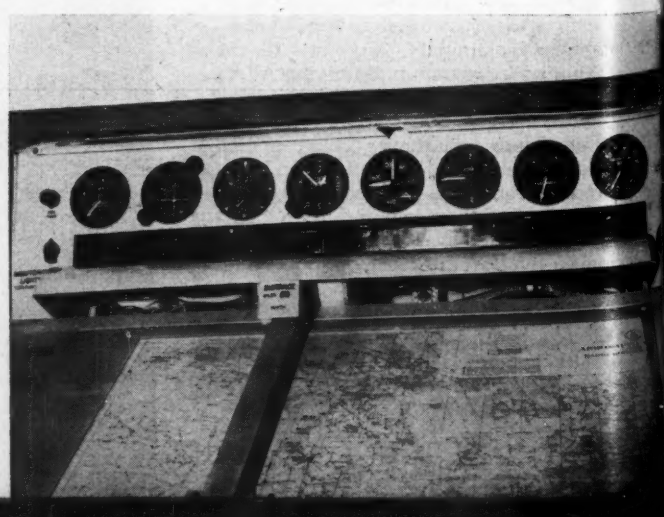
Relative to the engine operation, errors made by the student in the cockpit are transmitted to the check pilot through a series of 23 colored lights located on the console. Red lights indicate an error in technique, amber lights the result of the error and blue lights show the operating condition of the airplane.

When all three of the lights start dancing like a neon sign, the check pilot can press a button marked "angelic switch," which clears the board

The instrument panel and controls of the new USAF jet trainer closely conform to the cockpit of a jet fighter. Shown on the panel are the various flight and engine instruments which the student pilot uses to simulate jet flight in all weather.

Across top, eight repeater instruments duplicate readings in pilot's cockpit for instructor's benefit. Directly below them, the row of 23 tell-tale lights monitor pilot performance. Pen traces flight path on map.





of all troubles and allows the student to start his problems all over again.

Another feature of the trainer is its navigational facilities. For the first time in any ground training device, it is possible to give a pilot instruction in the use of VHF, omni-range and the off-set course computers.

Facilities in the trainer include a radio magnetic indicator (RMI), an ID-249 cross-pointer indicator and an Arbitrary course computer. These enable the pilot under the hood to determine his position and course through visual reference to the instruments rather than aural signals with previous low frequency equipment.

The innermost workings of the new Link are primarily electronic and are based upon a series of aerodynamic equations which express all the essentials of jet flight.

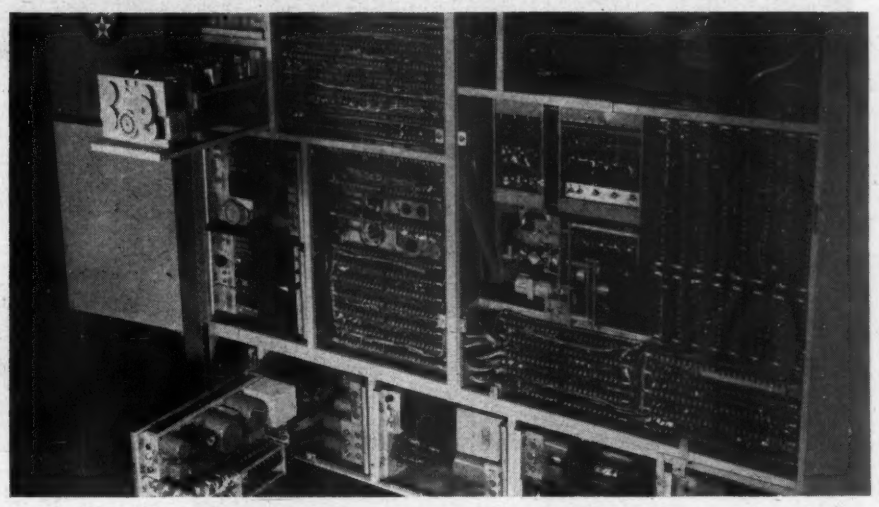
Computers express the changing solutions in voltages which in turn are fed through amplifiers and servos and finally presented to the student or "pilot" as instrument indications, control pressures and radio signals. There are 24 of these computers in all, housed in the cabinets in the base of the trainer and they act instantaneously to calculate all flight variables and express them in accurate trainer performance.

This electronic wizard seems to be working satisfactorily. Here is what some of the jet pilots who ran evaluation tests on the trainers reported.

"I thoroughly enjoyed this course of instruction. I believe the right approach is being made toward training purposes by developing this type of trainer and I would like to see the advanced single engine schools equipped with trainers of this type."

Another pilot: "I can take an average cadet in advanced school and with 20 hours in this trainer I can have him consistently accomplishing instrument navigation flights with ITO and touchdown landings.

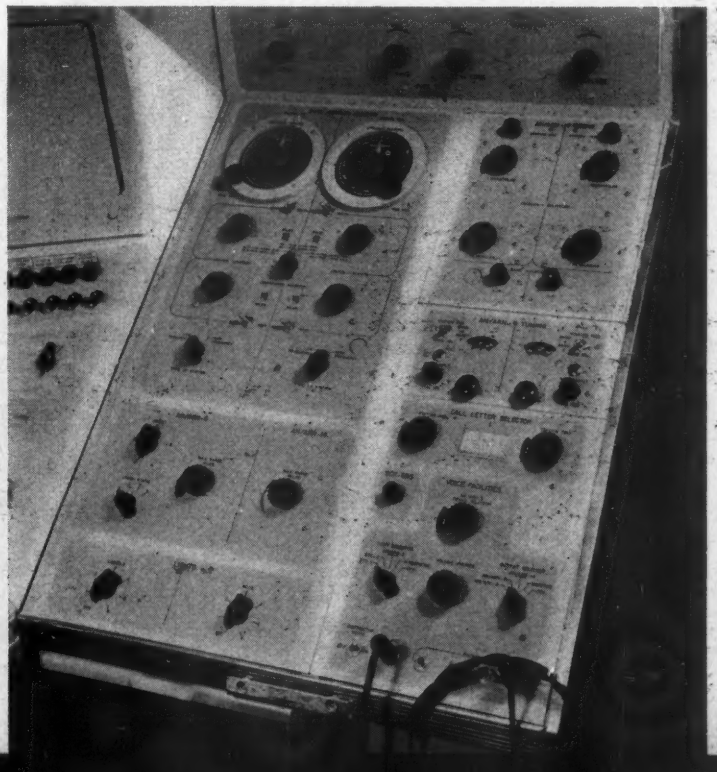
The Jet Link Trainer is built in four main sections for easy portability. Each section is mounted on casters and can be wheeled through a 3'6" door.



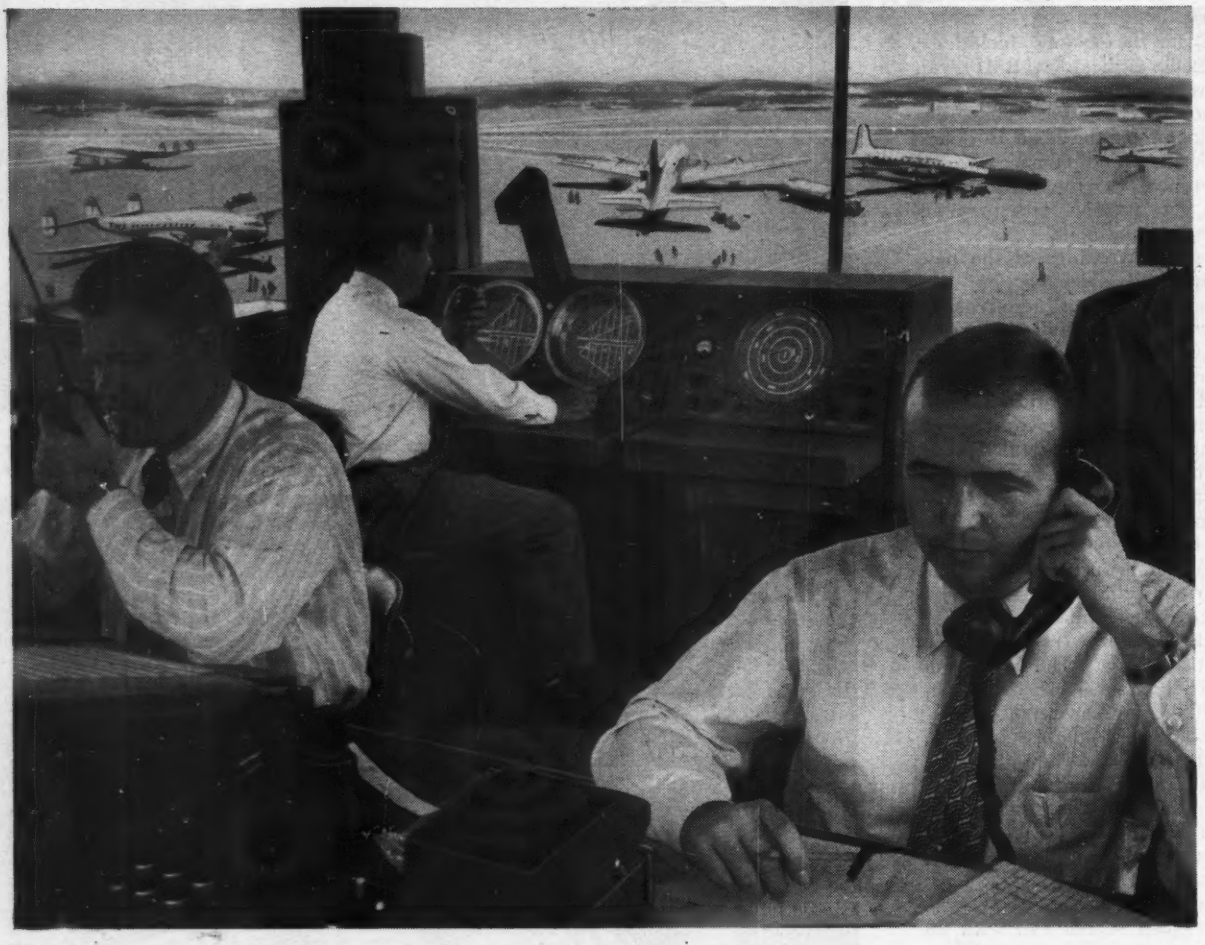
Easy access to intricate arrangement of the trainer's electrical "brain" is provided by chassis units which roll out for inspection or adjustments.

The 12 pushbuttons, below, control the various emergencies with which the instructor can confront the pilot. Included is an over-ride which registers pilot errors, but does not disable engine or aircraft.

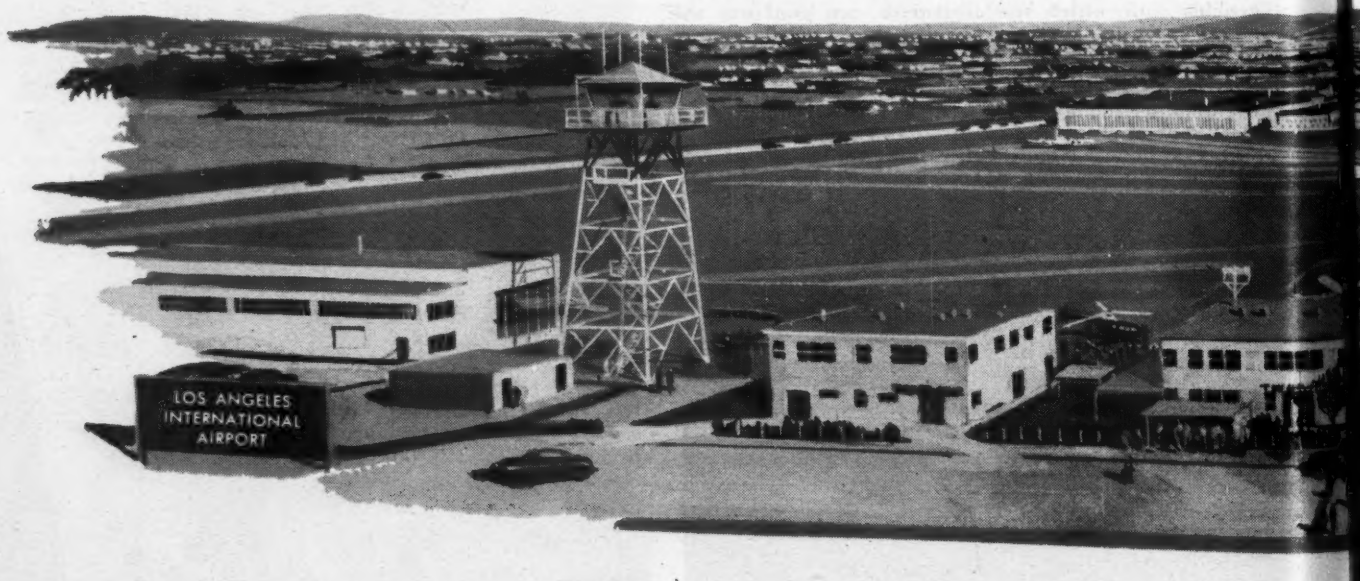
Right, a section of the instructor's panel shows complete controls for radio facilities and voice communication. Complete navigational training on low frequency, VHF or ILS are one of the trainer's best features.



NOW...Gilfillan GCA in o



GILFILLAN'S GCA CONSOLE in the L.A. control tower contains a surveillance scope (right), and two precision scopes for blind landings. On the left is the three-mile final approach scope; in the center the 10-mile scope. Aircraft's position on final approach is shown in three dimensions accurate to ± 15 feet.



operation at L. A. Airport

DEDICATION of GCA at Los Angeles International Airport marks a great day for Gilfillan. It signals a long step forward in air navigation and safety. It is the realization of years of GCA research and development at Gilfillan.

Today, folks who fly the airlines to or from L. A. Airport can relax in a new assurance of safety...secure in the knowledge that the finest in air navigation equipment protects them.

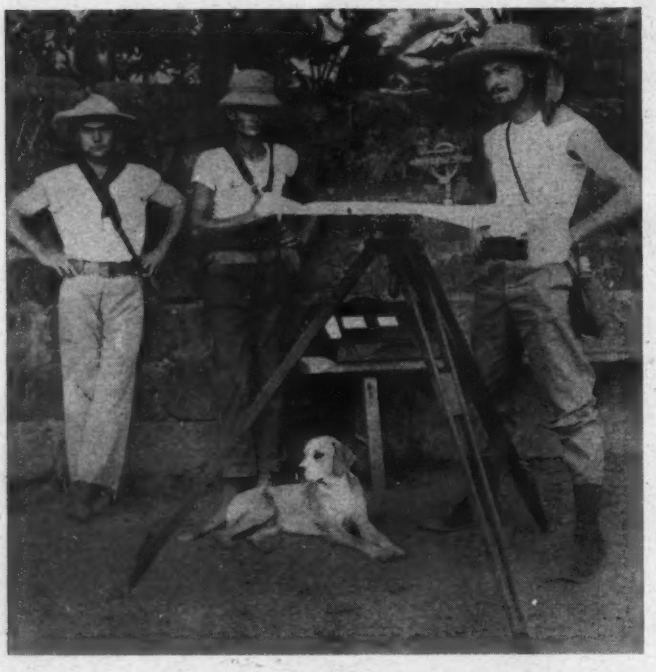
A new surge of confidence in air travel will result. For with Gilfillan GCA, airline schedules will be regular and on time, delays and cancellations rare. Airline operating costs will go down, air safety up.

82 similar GCA installations will be made at key CAA airports by 1952. Gilfillan, in cooperation with the USAF, the USN, and the CAA, is proud to have pioneered and developed the GCA of 1950.

GCA *Gilfillan*
LOS ANGELES

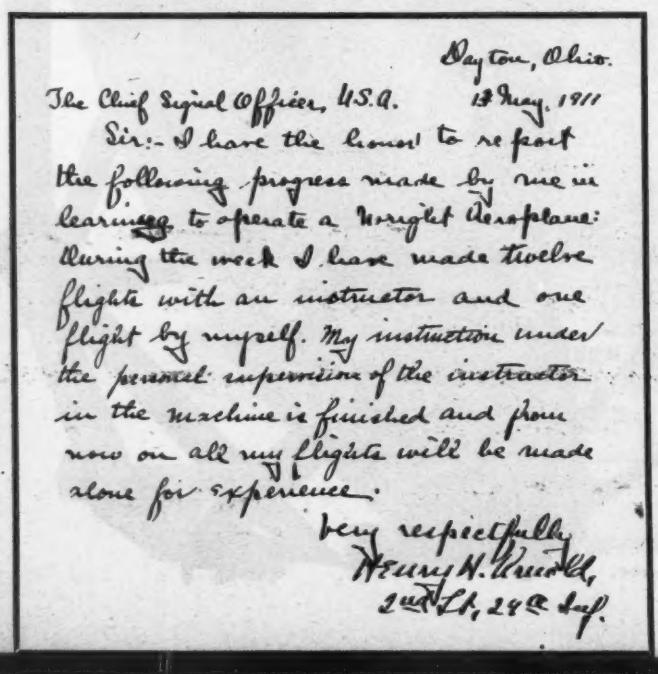
Gilfillan's radar surveillance antenna (right), searching through 360°, scans a radius 30 miles out and 10,000 feet up. Position of every aircraft in a 2,800 sq. mi. area is picked up and shown on the surveillance scope.

1 Members of play given at Lower Merion High School, Ardmore, Pa. in 1903. Even here young Hap (top, second from left) seems to have his eye firmly fixed on the future. His Dad was a doctor, hoped Hap would be too.



2 Arnold entered West Point in 1903. After graduation he spent two rugged years in Philippines as a second lieutenant in the Infantry (above right). He was not impressed.

3 In 1911 Arnold was ordered to Dayton, Ohio, to take 60-day course in flying the "aeroplane"—a two-place Wright ship with a 40 mph top speed. In May he had the "honor" of advising the Chief Signal Officer that he had soloed.



Dayton, Ohio.
The Chief Signal Officer, U.S.A. 12 May, 1911
Sir:- I have the honor to report the following progress made by me in learning to operate a Wright Aeroplane: During this week I have made twelve flights with an instructor and one flight by myself. My instruction under the personal supervision of the instructor in the machine is finished and from now on all my flights will be made alone for experience.
Very respectfully
Henry H. Arnold,
2nd Lt, 24th Inf.

General of the Air Force Henry H. Arnold

The Old Man learned to fly by the seat of his pants but he never thought that way. His legacy is a ringing challenge to outmaneuver tradition and outpace air progress

General of the Air Force H. H. Arnold, who died of a heart ailment January 15 at his Sonoma, California ranch, was born June 25, 1886, in Gladwyne, Pa. He was graduated from the U. S. Military Academy in 1907 as a second lieutenant of Infantry, entered the aviation section of the Signal Corps in 1911 and was taught to fly by the Wright brothers. During World War I he advanced to Assistant Director of the Air Corps with the temporary rank of colonel. He became Chief of the Air Corps in 1930 with temporary rank of major general. In 1941 he was made Deputy Chief of Staff, AAF, then Chief of the AAF as permanent major general. In 1942 he became the AAF's first Commanding General, and the next year achieved the rank of a full general. In 1944 he was one of four Army leaders given five-star rank as General of the Army. On June 3, 1949, he was commissioned a permanent General of the Air Force, the only such commission ever signed.

One day early in 1945, as the war rushed to a climax, brass and junior brass of Air Force Headquarters rushed to an auditorium on the fourth floor of the Pentagon. Word had gone out from the Old Man's office for all—repeat *all*—staff officers to assemble at once, and on the Pentagon front this was something more than a red alert. It was, in fact, the first time Headquarters had been brought together *en masse*. It could mean most anything, good or bad.

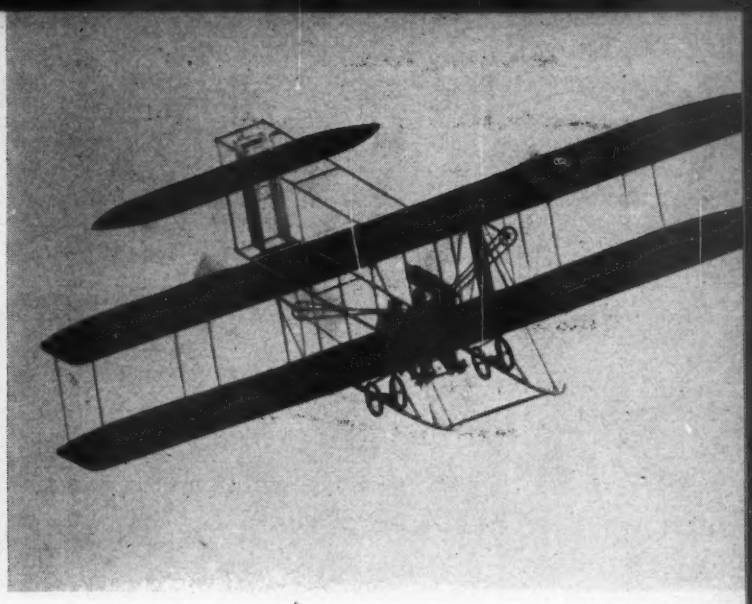
General Arnold greeted them with his customary grin, and a casual statement: "I've got something for you to think about." Then he was telling them something they already knew—that the pilot had long been the hub around which the Air Force world revolved. They had heard it over and over again, ever since those first days in Primary, but it always sounded nice coming from the Old Man. And now, with row upon row of pilot's wings staring him in the face, he was saying that those wings symbolized the pinnacle of Air Force achievement—global striking power. Then he gave them a jolt. What he said, in substance, was this:

The pilot will not always be the key to airpower. For the present, yes. For the immediate future, yes. But even now mechanical gadgets are fast encroaching on the pilot's domain. We are entering the era of the guided missile. Someday, perhaps in your time, the man holding my job will meet here with a Headquarters staff composed of scientists, both the long haired and short haired variety, and they will wear no wings on their chests. The pilot's wings will have ceased to be the yardstick of Air Force achievement. That's something for you to think about.

No pilot ever wore his wings more proudly than General of the Air Force Henry H. Arnold. He learned to fly before they were created, when the only Army "wings" were the certificates from the F.A.I. (Federation Aeronautique Internationale) he and a small group of early birds received as proof they had

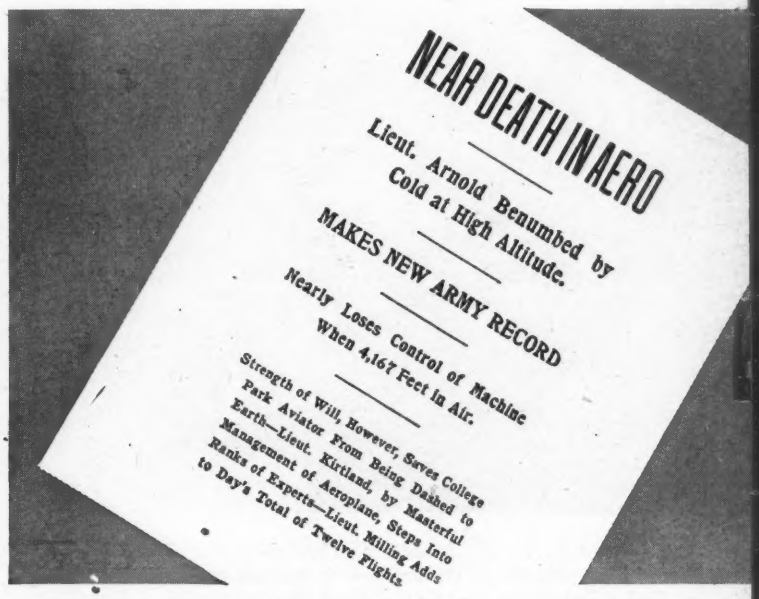
(Continued on page 28)

4 After Dayton, Hap was sent to College Park, Md., the Randolph Field of its day for more training. Above the future CG of the AF (right) talks it over with two other pioneers—Lt. T. D. Milling, and Orville Wright.



5 This is job the Old Man learned to fly in. Above, he and fellow Lt. Roy C. Kirtland in flight at College Park. Arnold won his pilot's rating in July, 1911, and celebrated by flying to the unheard of altitude of 4000 feet.

6 One of Arnold's proudest possessions—one which he wore to his grave—is this Military Aviator's Badge which he won in 1912 with 20 mile flight at 1500 foot altitude.



NEAR DEATH IN AERO

Lieut. Arnold Benumbed by Cold at High Altitude.

MAKES NEW ARMY RECORD

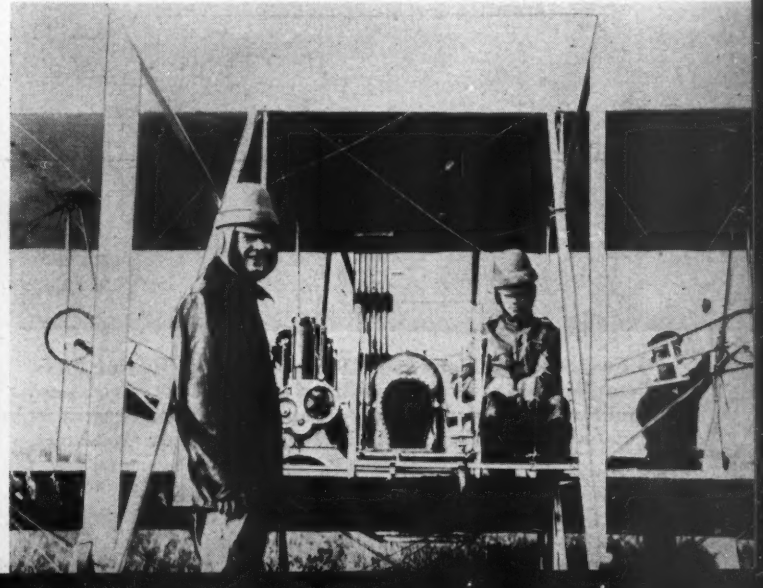
Nearly Loses Control of Machine When 4,167 Feet in Air.

Strength of Will, However, Saves College Park Aviator From Being Dashed to Earth—Lieut. Kirtland, by Masterful Management of Aeroplane, Steps Into Ranks of Experts—Lieut. Milling Adds to Day's Total of Twelve Flights

7 In these days of altitudes of 45,000 feet, it is hard to believe that a flight of slightly over 4000 could have inspired the above news story only a few short years ago.

8 In 1912 Arnold participated in experiments held at Ft. Riley, Kan., to direct artillery fire by radio from the air. Here (second from right) he convinces a skeptic by showing him diagrams to assist in correcting his aim.

9 Also in 1912 Arnold (left) gives photographer a smile as he prepares to take off in one of two planes owned by the Army at that time. Reconnoitering a 10 mile triangle, he located Cavalry troop, returned a report in 45 minutes.



10 That Arnold didn't get overseas in first war was one of biggest disappointments of his career. He kept plugging for airpower though through the dark twenties. Here he posses with Will Rogers whom he took for a spin in 1931.

11 Lt. Col. H. H. Arnold perches atop the cockpit of an early Martin B-10 bomber. It was perhaps the B-10 that first pointed the way to the great fleet of strategic bombers, and indeed to the strategic concept that evolved in WW II.

12 For leading a flight of B-10 bombers from Bolling Field to Fairbanks, Alaska, and back (8290 miles), Brig. Gen. Arnold was awarded Mackay Trophy in 1934. Present at ceremony was Jimmy Doolittle, Brig. Gen. Oscar Westover.

passed their flying tests, and he was one of the first to receive the Military Aviator's Badge, predecessor of the modern wings. The General had a reverent fondness for the Badge. It meant something special, a reminder of the old days when every flight was a major event.

The Old Man grew up in an Air Force dominated by pilot skill and pilot courage, with an airpower concept built on a foundation of muscles and reflexes. He had piled up his flying time in 40-horsepower, chain-driven crates when practice hops were restricted to days when wind velocity didn't exceed five miles per hour, when the eight mile hop from College Park to Washington Barracks was a "cross country flight," when his climb to the incredible height of 6,540 feet established a world's record, when, goaded by the skeptics, he pitted his military plane against pigeons—and won the race only because his competitors got lost.

"In General Arnold's story," the *New York Times* editorialized last month, "can be found the key to that fierce loyalty, that close identification of men and weapons, which has had so much to do with bringing the air arm to its present stage of terrifying efficiency." And in that story can be found the basis for the swashbuckling "wild blue yonder" spirit so much a part of the Air Force, and which can be so obnoxious to people on the outside. It was rash and impudent. The Old Man, who could be these things and more, had grown up in an Air Force which had more spirit than gasoline and more guts than horsepower, an Air Force which ran on its ego. That there was ego aplenty, in General Arnold and in other airmen of the day, was fortunate, if not vital, for survival of the Air Force. He and the others were humiliated, doublecrossed and exiled by people who somehow thought they could prevent the airplane from coming to stay. Our early airmen were frustrated in the knowledge that they possessed a military instrument which gave promise of revolutionizing the art of warfare, but which was being ignored or, at best, forced into impotency within the old military structure. Their predicament was evident during one military review when, clad as cavalrymen complete with boots and spurs, they piloted their single engine pursuits past the reviewing line while standing erect in open cockpits in full salute—and in the zig-zaggingest flight formation ever seen—because the Army insisted that its airmen follow accepted review procedure of the day.

For Hap Arnold, as for Billy Mitchell and the others, military service became a crusade for acceptance of airpower as a prime instrument for national security, and for recognition of the Air Force befitting that role. The decisions affecting airpower were invariably being made by men who, if not openly prejudiced against the airplane, were almost totally ignorant of its potential. General Arnold and the others grew up on the defensive, spending almost as much time explaining what they were doing as in doing it. The first world war didn't alter the balance of power within the military to any appreciable degree. Billy Mitchell gave airpower its great stimulus, but by the 1930's military aviation was again gasping for breath.

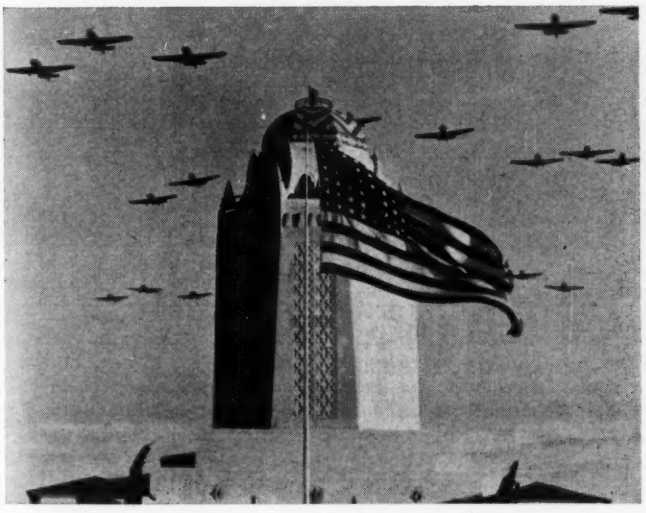
World War II provided the opportunity and Hitler the challenge for the real development of American airpower. For the first time, money and manpower were available on a huge scale. A concept of strategic bombardment had been evolved over the years, and a strategic bomber, the B-17, was far enough along, after a shaky start, to be worth the gamble. The Air Force spirit, as always, was willing, but spirit was hardly enough. Hitler's air force was 50 times the size of the American air arm, and the war was global in scope. The need was for a leader to push through the barriers of conservatism, ignorance and vested interest, and mould the elements of airpower into a mighty striking force. The job called for a human bulldozer. Hap Arnold became just that.

When the door of the airpower cage swung open, the Old Man came out like a roaring lion, and he never ceased to roar until the job was done. His critics have said he was single-minded to the point of stubbornness, self-confident to the point of egotism, impatient to the point of irritability. They have told how he fretted when progress was delayed, how he blew up when things weren't to his liking, how he ran rough shod over precise facts when they got in the way of his arguments. Those who worked closest to him and loved him most would

(Continued on page 30)

13 Twenty-eight years after his first airplane ride, Maj. Gen. Arnold was administered oath of office as Chief of Air Corps by Chief Clerk J. J. Mullaney. Arnold succeeded General Westover in 1938 when latter was killed in crash.

14 Shortly after assuming office, General Arnold accepted Collier Trophy, won for first successful flight of a pressure cabin plane, the XC-35 (above). General specs for the B-29 Superfortress began to take form in the next year.



15 Early in 1939, Arnold, addressing operators of civil flying schools, said, "There's going to be a war and we must build an Air Force." He knew it would require more than Randolph Field to train pilots that would be needed.

16 After Pearl Harbor, Arnold stayed pretty close to Washington. But by mid-1942 he had resumed his on-the-spot inspection trips. Above, Robert Lovett awards him the Distinguished Flying Cross after record flight from Australia.

17 Generals Arnold and Marshall pictured at Casablanca Conference in January, 1943. Out of this meeting came the vital directive which gave the AAF the green light on daylight bombing at high level—the beginning of the end.

18 Above picture showing early Arnold staff is something of collectors item. From left, Lt. Col. Edgar Sorenson, Lt. Col. Harold George, Brig. Gen. Carl Spaatz, Arnold, Maj. H. S. Hansell, Brig. Gen. Scanlon, Lt. Col. Arthur Vanaman.

19 When the first B-29 wing was activated in June, 1943, Arnold was wearing four stars. He took 20th Air Force under personal direction, saying, "The Superfortress will strike deep in Japan and pave the way for eventual victory."

20 Arnold never got over being proud of an Air Force that numbered 2½ million men. And he never lost a chance to talk things over with them wherever and whenever he could. Here he chews the fat with men in Egyptian desert.

21 Toward the end of 1943, Arnold flew to England to look over the AAF's preparations of big winter blitz, after which he visited Mediterranean front enroute to Teheran Conference. Here he talks to Roosevelt at Sicilian airport.

HENRY H. ARNOLD CONTINUED

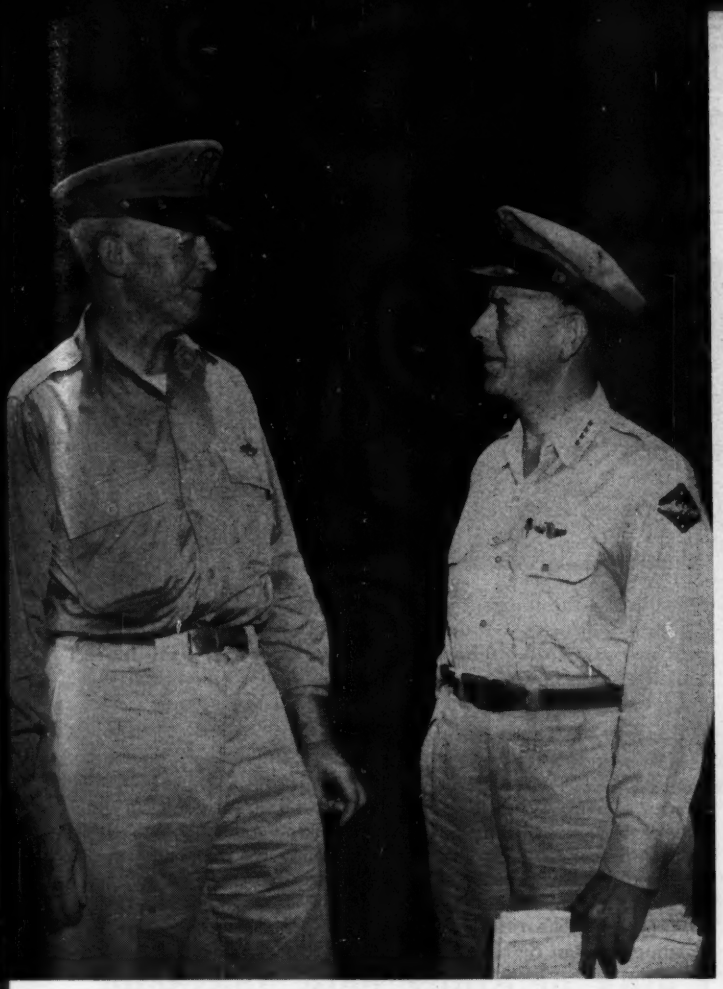
probably agree. They might add that he saw big and acted big at a time bigness was hard to find, that he was the leader the situation demanded. When he pounded his desk in Washington, the shock was heard around the world. He pushed, shoved, wheedled and stormed airpower into a decisive role with decisive results.

When certain Cabinet members argued that the US should produce planes for the British and other Allies rather than build a large Air Force of its own, the Old Man was magnificently stubborn in his reply that planes without the right men and the right concepts were useless, and won his argument that the tail should not wag the dog. When an RAF mission came to Washington armed with formidable statistics on the failure of German daylight bombing and pressed its argument for American adoption of Britain's night bombing methods, General Arnold tactlessly and egotistically pitted his faith in untried B-17s and B-24s against this war-tested experience and convinced General Marshall and the Combined Chiefs of Staff that his daylight bombers could succeed where Hitler's had failed; and then he inspired President Roosevelt to issue his historic message calling for the unbelievable production of 50,000

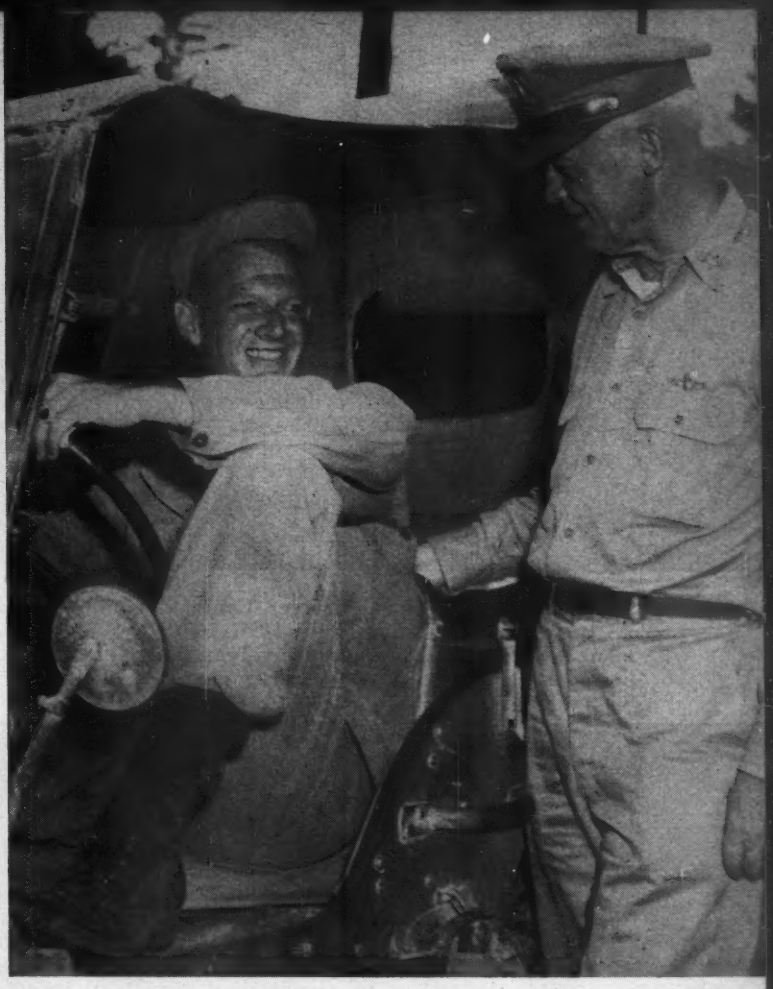
(Continued on page 32)

22 Also on Mediterranean agenda was visit with Gen. Dwight Eisenhower who had just completed plans for the Italian offensive. The discussion was devoted to air-ground problems of campaign. Picture was made at Castel Vetrano.

23 Illness prevented Arnold from attending the conference at Yalta, but as soon as he was well he hit the road again. Above, with Lt. Gen. Omar Bradley, he strolls along a French beachhead during inspection in June, 1944.

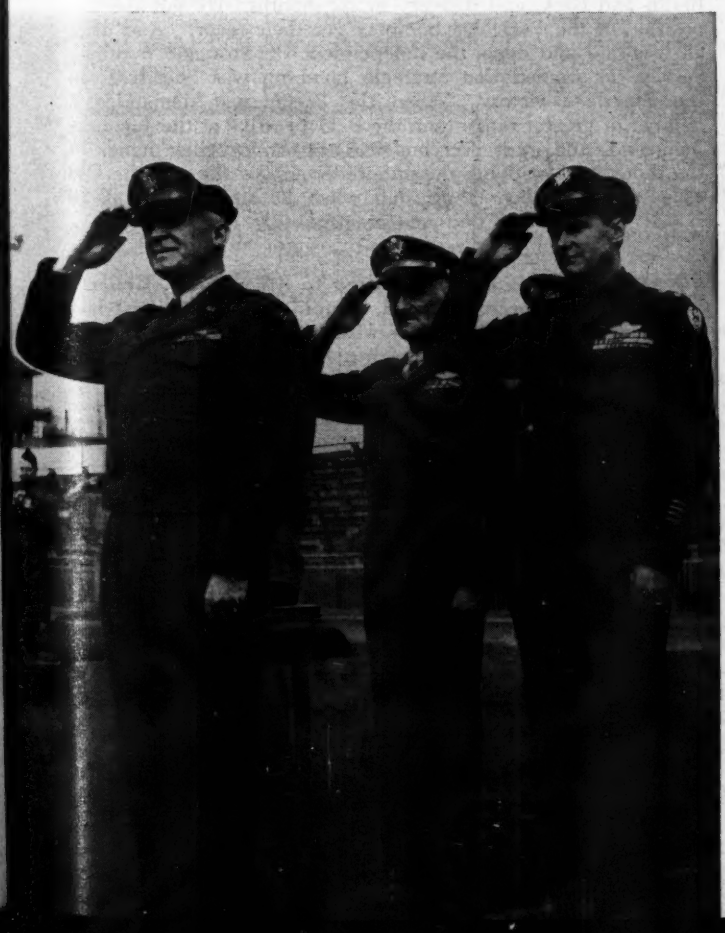


24 In 1945, with the war in Europe over and most US airpower moving to the Pacific, General Arnold flew to Manila for meeting with Gen. George Kenney before visiting Okinawa where he predicted "no Jap targets by 1946."

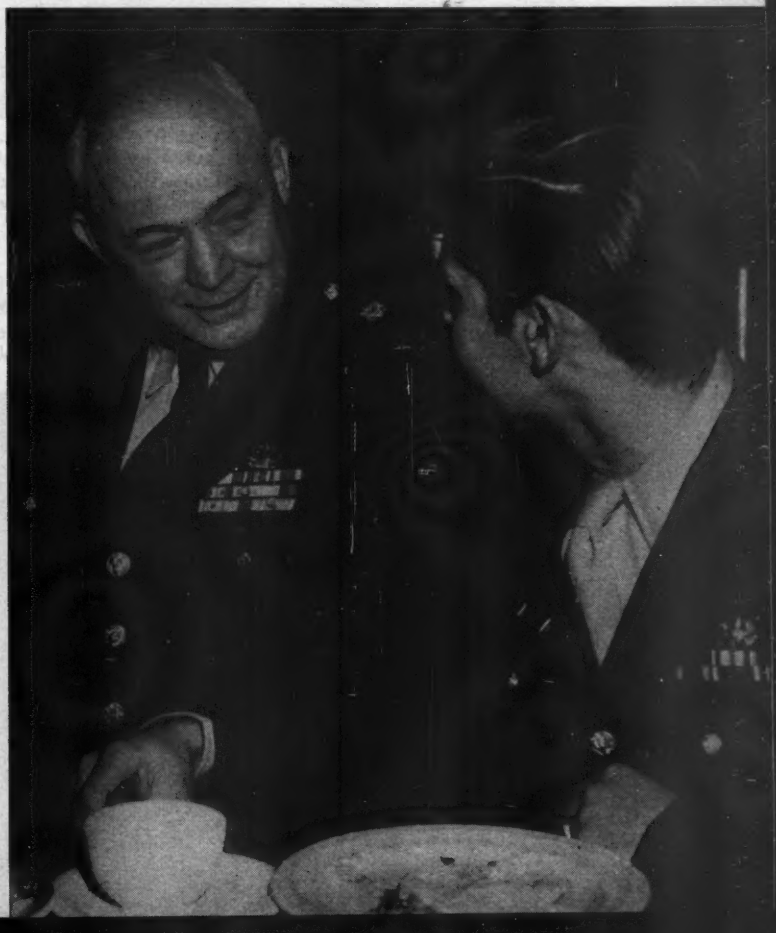


25 The occasions during the war when the Old Man got to talk to either of his sons were few and far between. Here he catches his son Lt. Bruce Arnold for a few minutes on Okinawa. Young Arnold was assigned to the 834th AAA.

26 A rare picture of the three men who have guided the destiny of America's airpower for the past twelve years. From left, Generals Arnold, "Tooey" Spaatz, who took over after the war, and Hoyt Vandenberg, who followed Spaatz.



27 When the job of winning the war had been accomplished, one of Arnold's greatest concerns was readjustment into society of men who fought it. Here he talks to patient at Pawling Rehabilitation Center which he founded.



28 As a climax to his active career, General Arnold received two oak leaf clusters to his DSM from President Truman. In the White House ceremony Truman cited his "great personal leadership, driving spirit, professional genius."

29 During the long months and years of debate, Arnold was one of the most outspoken proponents of unification and an independent Air Force. Here he raises his finger to emphasize a point in one of Capitol Hill's many hearings.

HENRY H. ARNOLD CONTINUED

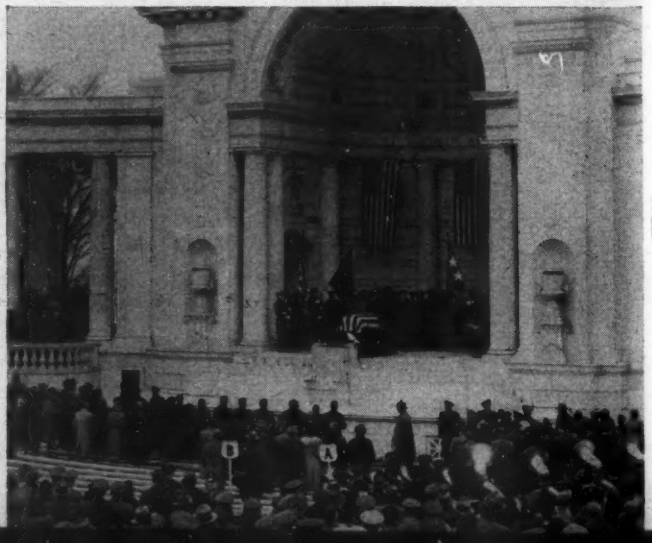
planes a year. When the aircraft manufacturers couldn't quite see how all this might be accomplished, General Arnold bulldozed them into accepting the methods which eventually made such production possible. When training experts found it hard to imagine where the pilots and crews for those planes were coming from, he pushed and stormed through a program employing civilian flying schools. When his own leaders couldn't see how all the ground technicians were to be trained, he impatiently forced them into converting a host of colleges into Air Force Schools. When the entire strategic effort over Europe was threatened with extinction due to the lack of a long range escort fighter and the heat was on again to convert the American daylight offensive to night bombing, the Old Man's stubbornness, egotism, tactlessness and impatience all came to the surface. He fretted and stewed and blew up and ran rough shod over more than a few precise facts when he ordered the impossible—a fighter with sufficient range to escort bombers to Berlin and back, and delivery in six months. He got the impossible in the P-51; his bombers got their escort. And after all was said and done, the independent US Strategic Bombing Survey determined that strategic bombing was "decisive" in the European victory. When the Pacific war demanded a bomber of greater range than the B-17 to strike at the Japanese homeland, and most everyone had thrown up their hands at the thought of readying the untested B-29 for the job, the Old Man really hit the ceiling, and when he smashed the B-29

(Continued on page 48)

30 With unification an accomplished fact, Hap was content for the most part after 1946 to relax with his wife and enjoy the quiet of their California home. Here he wrote the memoirs of a great career—the book "Global Mission."

31 Growing tribute to the greatest figure in history of military aviation came in 1949 when the Congress of US passed a law making Arnold the first man to have the title "General of The Air Force." Truman made the presentation.

32 After 63 years of life devoted to his country, General of the Air Force Henry H. Arnold was laid to rest last month in Arlington Cemetery with highest military honors. Above, friends stand in freezing rain to pay last tribute.



William Stadler is awarded first prize for proficiency in model aircraft construction from Vincent Ruggerio, councilman and chairman of the Junior Model Air Club which is sponsored by the Union-Morris AFA Squadron to get children interested in airpower, at a Christmas party held on December 21 for members of the Club. At left is Albert Ferrais, secretary of the Stirling squadron.

Squadrons Play Santa in Yule Celebrations

New York's AFA Wac Squadron No. 1 entertains hospitalized vets

San Francisco unit presents food to ex-USAF families in need

The old-fashioned Christmas spirit was predominant among AFA squadrons this year as units throughout the nation sponsored Christmas parties for hospitalized veterans, children and other groups.

GUSTAV DIECHMANN

It is with profound regret that the Air Force Association notes the death of Gustav Diechmann, Secretary of its Queen's Squadron, who passed away on December 13, 1949. He was a charter member of AFA and one of his squadron's most active workers.

TED G. McDOWELL

Ted G. McDowell, editor of the Beckley, W. Va. Post Herald, died of a heart attack on December 27, 1949 in Charleston, W. Va.

The Air Force Association, and especially its Beckley Squadron, will sorely miss this staunch friend and loyal supporter. Through his newspaper, McDowell gave AFA its first real support in West Virginia by giving complete coverage to activities of the Beckley Squadron. He was always ready to put the full weight of his newspaper behind all local aviation activities and his death comes as a severe blow.

Mary Gill Rice's New York WAC Squadron No. 1 gave a boost to unification on December 10 when they entertained patients at the U. S. Marine Hospital, Neponsit, Long Island.

Entertainment, which was furnished through the Actors Guild of America, consisted of Freddie Lane, an acrobatic dancer recently discovered by Arthur Godfrey; Lillian Harvey, a singer who just returned from a round-the-world singing tour; Beverly Muhs, a ventriloquist; and Jackie Warner, dancer.

Two three-foot cakes were donated for the occasion—one from the bakers at Mitchel Air Force Base and the other by the Food Trades Vocational School.

After refreshments were served, each patient in the entire hospital was presented a Christmas present including such items as sweaters, trousers, pajamas and lighters.

A drawing for a door prize in each of the six wards was held, thus enabling the bedridden patients to participate. Door prizes consisted of such items as $30 in cash, dressing gowns, radio and camera.

The refreshments, decorations and door prizes were donated for the party.

A Christmas open house was held by the San Francisco Squadron on December 15 in Hangar 213 of the War Memorial. After a short business session, a Christmas songfest was held and hot toddies were served.

Each member brought a can of food to the party. Twelve baskets were made with the donations and presented on Christmas Eve to ex-USAF families that have been found to be in need.

A highlight of the Christmas season in Cleveland was the Christmas party given by the Cuyahoga Founders Squadron's Auxiliary for the children on December 4 at Rainey Institute. The party was complete with Christmas tree, Santa Claus, presents and movies.

A small present was donated by the parents of each child they brought. The movies which were enjoyed by the elders as well as the youngsters, were donated by the Eastman Kodak Company.

Much credit for the smooth performance of the party must be given Santa Claus, alias AFA member Percy Bray, who took each of the 24 children present upon his lap and listened confidentially to the wee one's secrets.

Members of AFA's Baltimore WAC Squadron No. 1 visited female veteran patients at Fort Howard Hospital on December 18 and presented each with a gift.

"Operation Vittles" and another Air Force film were shown to members of the Bronx Squadron at the December 16 meeting. Following the meeting, a Christmas celebration was held at Croke Park Tavern.

A turkey dinner with all the trimmings was the feature of the Beckley Squadron's Christmas party held on December 8 in the El Chico Cafe in Beckley, West Va.

Other AFA squadrons reporting Christmas celebrations were the Newark Squadron and the Rochester Squadron.

Chicago Gp. Comdr. Chas. Stebbings and Frances Barzycki, Chicago WAF Sqdn. Comdr., at Christmas party.

AF Film "Air Power" Now Available to AFA Units

Motion picture traces development of AF from supporting role in first World War to important strategic force in World War II.

"Air Power," an eighteen-minute black and white motion picture produced by Sound Masters, Inc. for USAF, is now available to AFA Squadrons.

This motion picture, narrated by Lowell Thomas and supplemented with explanatory animation, shows the tactical supporting role the AF played during the first World War, its development and expansion to an important strategic force in World WAR II. Mr. Thomas points out the new result of ceaseless planning and effort in all fields of development is the combat potential of the Air Force. Yet just as important as the tangible assets of our Air Force is our mental attitude, as a nation, toward air power.

This motion picture is cleared for all non-profit screenings including television. Prints (16mm) are available on loan through the Area Control Film Library servicing your locality. Address the Public Information Officer at the following headquarters:

Hq. Middletown Air Materiel Area, Olmstead AFB, Middletown, Pa.; Hq. Mobile Air Materiel Area, Brookley AFB, Alabama; Hq. Ogden Air Materiel Area, Hill AFB, Ogden, Utah; Hq. Oklahoma City Air Materiel Area, Tinker AFB, Oklahoma City, Okla.; Hq. Sacramento Air Materiel Area, McClellan AFB, Sacramento, Calif.; Hq. San Antonio Air Materiel Area, Kelly AFB, San Antonio, Texas; Hq. Warner Robins Air Materiel Area, Robins AFB, Georgia.

RCAF PRESENTS SILVER PLAQUE TO USAF

Lt. Gen. Lauris Norstad, USAF Deputy Chief of Staff, Operations, accepts a sterling silver plaque on behalf of USAF from Air Marshall W. A. Curtis, CB, CBE, DSC, ED, at RCAF Station Trenton, Ontario, Canada. Presentation took place during recent ceremony at which governments of U. K., New Zealand and Australia presented Memorial Gates to the RCAF Station in appreciation for the part the Government and people of Canada played in the training and care given thousands of airmen through British Commonwealth Air Training Plan in World War II. During the five years the Air Training Plan was in operation, 8,864 U. S. citizens enlisted in the RCAF. The U. S. was awarded the plaque for its cooperation and assistance rendered during the operation of the Plan.

AFA STATE ROUNDUP

CALIFORNIA

San Jose: As a civic function, the San Jose Squadron, AFA, is preparing to launch a bicycle safety program that should firmly establish it as an active and progressive civic body, according to Bernard Barrett, commander of the squadron.

This campaign will include periods of instruction on how to take care of a bicycle, handling it in traffic, city laws applying to the riding of bicycles, motion pictures, and after passing a short examination, a card of merit with the AFA's and the Squadron's name on it, will be awarded each successful child. Small groups will be instructed Saturday mornings, the program to run approximately six months.

The squadron plans to sponsor a flying safety program after the Bicycle program.

GEORGIA

Savannah: Maj. Gen. Frank O. Hunter (Ret.) was unanimously elected commander of the Savannah Squadron, AFA, recently at a meeting held at Hunter Air Force Base.

Other officers elected were Joseph Ivey, senior vice commander; Donald Miller, junior vice commander; Herman Crannan, secretary; Andrew Swain, treasurer; Richard W. Lantz, public relations officer; Alton Moore, sergeant-at-arms; Gen. H. S. Hansell, Jr., Thomas Carlton and Frank Skeffington, councilmen.

The entertainment included an open house program with Maj. W. H. Kelly as host, and an exhibition of a disassembled F80 Shooting Star with a performance lecture by Capt. W. A. Crawford, base engineering officer. Air technicians who explained the operation of the aircraft were John A. Drossopoulos, Benny Thigpen and Andrew Swain.

Guests included Col. Frederic E. Giantzberg, commanding officer of the Second Bomb Wing; Col. William E. Eubank, commanding officer of the Second Bomb Group; Col. William H. Hanson, commanding officer of the Second Air Base Group; Col. Shannon Christian, senior air instructor of the local Air Guard; Lt. Col. Ralph G. Kuhn, senior Air Guard Officer, and Capt. Harry Adams, base operations officer.

Col. Giantzburg extended an invitation for the association to hold its installation meeting at the officers' club at Chatham Air Force Base.

Frank Skeffington is the retiring commander of the local squadron.

MARYLAND

Baltimore: Present officers of the Baltimore Wac Squadron No. 1, AFA, were

AFA STATE ROUNDUP

unanimously voted to serve another year at a recent meeting of the Squadron.

Lillian B. Beard, 2234 N. Calvert St., is commander; Nellie Hann is recording secretary; and Rosalie Spisler, treasurer.

A Valentine party and dance will be held on Saturday, February 18, at the Dugout.

MICHIGAN

Detroit: Dick Goldfogle, Michigan State AFA Wing secretary, and officers of the Detroit Squadron No. 1 attended the 40th birthday party of the Aero Club of Michigan held recently at the Hotel Book-Cadillac. The event also commemorated the 46th anniversary of the Wright Brothers' first flight at Kitty-hawk.

Honored guests included two top aviation experts, Delos W. Rentzel, administrator of civil aeronautics and Gen. Hoyt S. Vandenberg, Air Force chief of staff.

Appearing with Gen. Vandenberg as a special guest was his assistant, Lt. Gen. Elwood R. Quesada. Quesada has been chosen to command new atom bomb tests in the Pacific.

Gen. Vandenberg acknowledged the part that Detroit's industrial might has played in the development of our air power.

But he warned that the Nation must not depend for its defense on the planes and tactics of World War II. Constant progress in the development of military aircraft is required for our security, he said.

Rentzel cast a balance sheet for civil aviation in 1949. Commercial airline traffic is at an all-time high. Airlines are operating in the black. Airline safety is the best in history, he said.

NEW JERSEY

Hawthorne: Special Agent James Minehan, F.B.I. resident agent in Hackensack, discussed the Federal Bureau of Investigation and how it functions for members of the Passaic-Bergen Squadron of AFA, when they met recently at Bill Odom's Restaurant in Teterboro.

In his address, Mr. Minehan included many topics that are not generally known by the average citizen, with most of the emphasis placed on the Special Agent, popularly known as the "G-Man."

NEW YORK

New York City: The Staten Island Squadron, AFA, has been active with the Model Plane groups in their area, according to John E. Most, N. Y. Wing Commander.

The Squadron is working closely with the Academy of Models which is part of the National Aeronautic Association.

"The interest that the Model people have in aviation is very great and we believe it is very worthwhile for the AFA units to work with them," according to Most.

On Staten Island, the AFA Squadron is trying to get the City of New York to set aside part of a public park for model meets. It appears there is an international trophy for which to compete.

Illinois Wing Commander Ray Ireland presents Chicago's Mayor Kennelly AFA's citation of honor for City's contribution to success of 1949 National Air Fair. Left to right: Jay Schatz, Mid-West National VP; Ireland; Charles Stebbings, Chicago Gp. Commander; the Mayor; James Douglas, Air Fair Committee.

The Rhode Island Wing of AFA makes Governor John O. Pastore an honorary member of the Association. Left to right, Eugene Verrier, R. I. Wing Commander; William D. F. Morrisson, AFA Director, who pinned emblem on the Governor; Marcello A. Tropea, Providence Sqdn Commander; Gov. Pastore.

OHIO

Toledo: Maj. Gen. Willis H. Hale, commanding general of the 9th Air Force, has been invited to be guest speaker at the Toledo Squadron's annual Air Power Day celebration on February 8, 1950.

Other honor guests expected are Maj. Gen. L. C. Craigie of Wright Field; Joe E. Brown, Toledo Squadron's life-time honorary president; the Governor of Ohio; Mayor of Toledo, and AFA's President Bob Johnson.

Highlight of the program will be the Airpower Banquet. Among other events scheduled for the day are a parade and a cocktail party.

The Squadron plans to take in two honorary members—Milt Caniff, the cartoonist, and Mitch Woodbury, theater editor of the Toledo Blade.

New membership cards were recently issued by the squadron to members. The cards bore the personal signature of Joe E. Brown.

Recent activities of the Toledo Squadron included the sponsorship of a hockey game at the Toledo Sports Arena and a "millionaires party," which was held to raise funds for the squadron club house.

Flying Time: 46 Years Flat

In one of the finest tributes ever paid to the memory of the immortal Wright Brothers, Americans from all walks of life gathered in Kitty Hawk last December 17 on the 46th anniversary of man's first powered flight.

The day-long ceremonies, sponsored by the Air Force Association and the North Carolina Division of the American Philatelic Society, under the auspices of the Kill Devil Hills Memorial Association, culminated in a luncheon banquet held at the Hotel Carolinian at nearby Nags Head. Major General Orvil A. Anderson, commandant of the Air War College, spoke for the Air Force. Earlier Vice-Admiral John Dale Price had spoken for the Navy.

The luncheon was highlighted by the Air Force Association's presentation to the Kill Devil Hills Memorial Association of the airmail cover which Tom Lanphier, Jr. took with him on his record-shattering 'round the world flight. The cover was then turned over to the National Air Museum of the Smithsonian Institution.

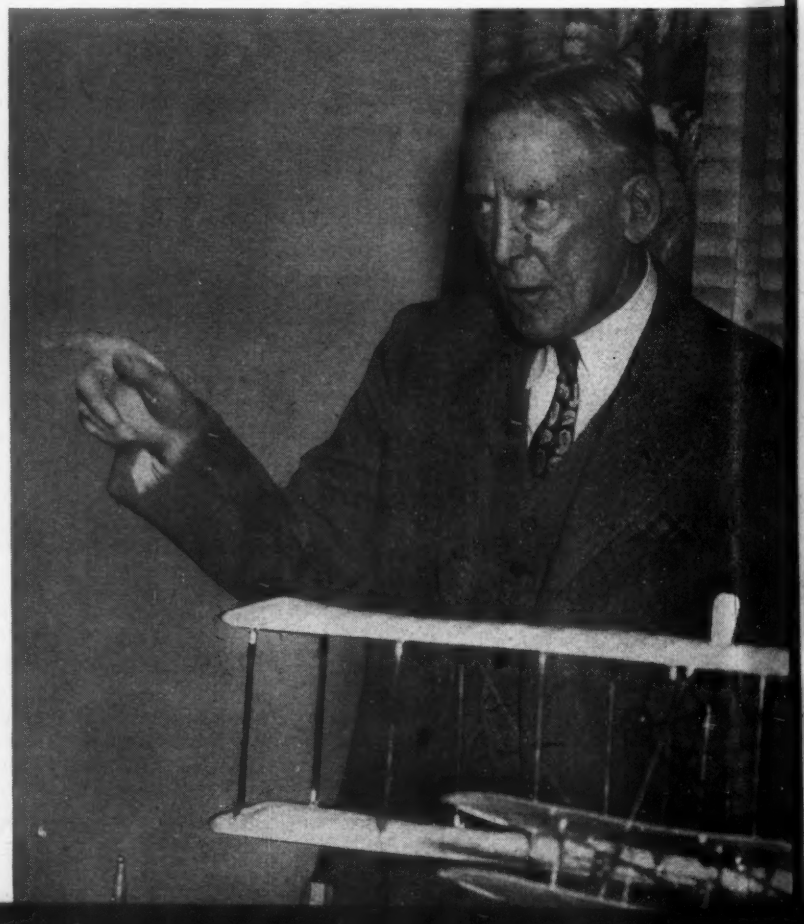
The day began with a special ceremony at the Kitty Hawk post office when the first sheet of the Wright Brothers Memorial airmail stamp was presented to the Historical Division of the North Carolina State Government. A sheet of the new stamps was flown to Dayton, Ohio as a gift from the town of Kitty Hawk.

The celebration at the monument itself began with musical selections by the Elizabeth City High School Band. After representatives of the Army, Navy, Air Force, Marine Corps and Coast Guard addressed brief remarks to the assembled crowd, Congressman Herbert C. Bonner read a message from President Truman.

Planes of the 156th and 157th Fighter Squadrons of the North and South Carolina National Guard flew overhead in a "V" memorial formation with two positions empty, signifying that two fliers are missing.

Above, planes from the 156th Fighter Squadron, N. C. ANG, led by Lt. Col. W. J. Payne; and 157th Fighter Squadron, S. C. ANG, led by Lt. Col. Barnie B. McEntire fly over the Wright Memorial Monument. Below Brig. Gen. Frank P. Lahm addresses luncheon.

Above, AFA President Robert S. Johnson presents a scroll to Miles L. Clark, President of the Kill Devil Hills Memorial Association, while North Carolina Congressman Herbert C. Bonner looks on. Below, Clark receives special Kitty Hawk Day messages which Lt. Milburn Henry flew from Dayton in F-84.



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Screen Play by Sy Bartlett and Beirne Lay, Jr. • Based on the Novel by Sy Bartlett and Beirne Lay, Jr.

Sikorsky Displays New AF 'Copter

Looking vaguely reminiscent of a lobster on the half shell, this new Sikorsky helicopter made its debut last month in Bridgeport, Conn. Known officially as the H-19, the plane was designed for the Air Force as a search, rescue and liaison craft. Its cabin is 10 feet long, 5½ feet wide and 6 feet high, making room for eight litters and one attendant, or ten passengers. The 600 hp engine is canted at about 45 degrees. Note position of engine in relation to pilot's office. Dimensions are: Rotor diameter, 49 feet; length, 39 feet, 6 inches; height, 12 feet, 4 inches. Five have been ordered by the AF to date.

Who'd be Tired?

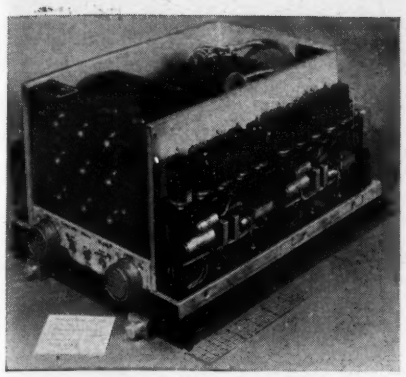
At USC they're conducting tests to determine whether exercise will lengthen a pilot's life and efficiency. But instead of a pilot they've chosen pretty Miss Jean Heiss to push the buttons and move the weights. And knowing most pilots, who can criticize their choice? Checking the meters is Roy Cochran, a graduate student at the school who reports that it is apt to take lengthy investigation before conclusions can be made.

D Model 86 Flies

Obviously carrying a snoot full of radar, the new North American F-86D Sabre made its initial flight in California early last month. Major modifications include placement of the air intake below the nose instead of in the center, and the addition of an afterburner to increase the power of its J-47 engine. Changes will give plane increased performance in climbing quickly to high altitudes, tracking and intercepting enemy planes. Air Force now has one F-86 group.

Powerful Fighter

Billed as the "most powerful fighter in the world," the Avro Canada CF-100 was unveiled for the first time late in December at its home plant in Malton, Ontario. The plane, built by A. V. Roe Canada Limited, especially for the RCAF, is the first frontline fighter ever designed in Canada. No information has been released regarding specifications or performance expectations. The ship is now undergoing taxi tests. If these and subsequent flight tests are successful the CF-100 may replace many of the British Vampires now being used by the RCAF.



Lightweight Pilot

What with the ever-increasing weight and space demands of radar equipment it had looked until recently as though an automatic pilot for fighter planes was out of the question. Now comes the F-5 automatic pilot, above, which may be the answer. Designed by engineers of the Wright Field Equipment Lab, the new device takes up very little room and weighs next to nothing. An experimental model has already been installed in the XF-89, but AMC engineers are even now working on another improved model.

A Solid Sender

The tiny unit above is the Air Force's latest air-sea rescue transmitter-receiver. It is the direct descendant of the vastly more buxom (40 lbs.) Gibson Girl familiar to all air crews of the last war. Air Force technicians report the URC-4 can do everything its grandmother did and better. Operating on two channels, VHF and UHF, the set can be switched from one to the other instantaneously. It has a transmitting range of 80 miles, and is remarkably impervious to damage by shock.

TECH TALK By Douglas J. Ingells

The entire Air Force research and development organization is due for some big changes. Already Washington has admitted that Pentagon planners have long been considering the formation of a new Air Force command to be known as—the *Research and Development Command* . . . Nothing has been definitely decided yet . . . The truth is, however, that R&D requirements in the growing scientific warfare have ballooned to such proportions that a new and more direct chain of command is needed . . . And, the new command once and for all would settle a big question: Where does pure research end and applied research begin?

Reports from Wright Field, long the headquarters and directing agency for Air Force research development and engineering activities, say this is the crux of the whole problem. To separate the basic and pure research programs (such as the wind tunnel activities and new programs like the AEDC—Air Engineering Development Center) from applied engineering research; make them two separate commands.

Some say it would split the Air Materiel Command in half, but this already has been denied. No exodus of engineers from Wright Field! A good tip, however, is that the Office of Air Research, recently established at Wright Field may supply the nucleus for any new R&D command. Office of Air Research has been described as a "higher scientific level" than normal activities at Wright Field.

The new Air Engineering Development Center, incidentally, most likely will be headed by Maj. Gen. Franklin O. Carroll, former chief of the engineering division and Research and Development directorate at Wright Field.

Another former Wright Field engineer, Maj. Gen. Donald L. Putt, now Deputy Chief of Research and Development in the Pentagon is tipped to take over duties as Commanding General of the new R&D command, if and when it is organized.

Captain (Faster Than Sound) Chuck Yeager has been transferred from his former Wright Field assignment in flight test division to permanent duty at Edwards Air Base (Muroc) where he may get a crack at the very latest type planes. . . . Reportedly Yeager's assignment for the present is to fly the new Convair XF-92A, first delta wing experimental fighter. In an interview recently Yeager said that there were "two or three planes which would probably beat the X-1 records." This may be one of the new fasties. . . . Some interesting experiments are also in progress for Northrop's transonic airplane design out at the old Muroc base. But nobody will say exactly what's cooking with the high-speed ship.

When Howard Hughes recently bought into the old Kellett Company what he really got was one really good prospect in the XR-17 helicopter. Called the "Flying Crane" it is one of the most unusual of all helicopter designs. A two-rotored affair, it uses an unique jet propelled system which applies virtually "afterburner" effects to boost rotor blade thrust . . . Too, its basic design is really on a cab for crew and crane for cargo. It has been described as working like the big lumber trucks that simply come along, drive up over a pile of lumber, pick it up between jaws and continue.

A retired officer, but one who is very close to the men who work on the Air Force's automatic C-54 airplane—improved version of the plane that flew "hands off" to England a while back—reports that the ship now is so completely mechanical that it even taxies out of the hangar and lines up with the runway for take-off. All push-button!

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BIRDS OF SLIGHT FEATHER

For at least three years past, the American taxpayer has been looking forward with enduring patience to the day when the yearly tab he gets for national defense would return to "normal". Nobody has told him what he could expect as normal, but he has hoped that it would be substantially less than the "emergency" bill of 13-odd billion he now pays. The unhappy truth, which all of us must accept, is that the present budget is, if anything, *sub*-normal— that defense costs are more likely to go up than down. The picture of these two Lockheed fighters (the F-80, left, and F-90) illustrates the point as simply as anything AIR FORCE editors have seen. For many reasons it is next to impossible to determine how much more the 90 will cost if ordered in production lots than the 80, but speaking generally, the Air Force states that on a pound-for-pound basis it costs close to twice as much to put a 90-type plane in the air ready to fight as an 80-type. (NOTE: Airframe costs per pound are actually *down* a little, so the near-doubling can be credited largely to expensive new equipment.) Add to the increased per pound cost the fact that a 90 weighs over two and a half times as much as the 80 and you can begin to see the hope of a smaller defense budget vanish like an X-1 on a speed run. If there is any way of getting increased aircraft performance at less cost, nobody in the business has found it. In the case of the F-90, the extra money will buy: about 100 more mph.; about 1000 miles more range; one foot more wingspan; 20 feet greater length; three feet eight inches more height. Eventually fighters will get smaller. Indeed the 90 may be the end of the big fighter trend. But even when the trend is arrested there is little hope the price tag will shrink accordingly. Any way you look at it, preparedness costs dough.

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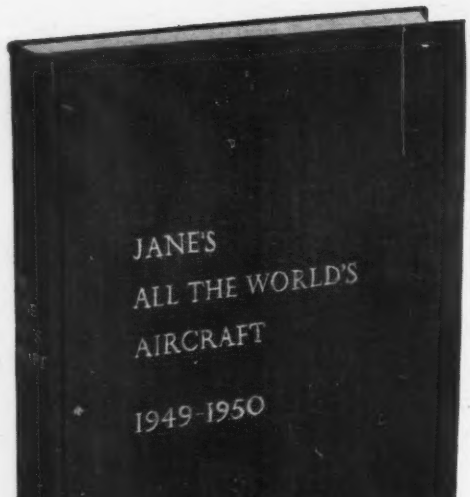

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The Airman's Bookshelf

Air Power and Unification

by Louis A. Sigaud
Military Service Publishing Company
119 pp., $2.50

Guilio Douhet was an Italian general who died in 1930. In many ways, his career paralleled that of Billy Mitchell—both saw the possibilities of military aviation long before their contemporaries and the "radical" concepts propounded by both men brought them courtmartial first and eventual vindication.

Louis A. Sigaud, author of Air Power and Unification, is one of the strongest supporters of Douhet in this country. It is his contention that no man has been more misunderstood—that Douhet never intended that the principles he set forth in his writings prior to and just after the first World War should be accepted in toto. His plan was for the defense of Italy—a relatively poor country with a rugged terrain presenting military problems uniquely its own. Any application to other countries must necessarily call for a "loose" interpretation of his principles.

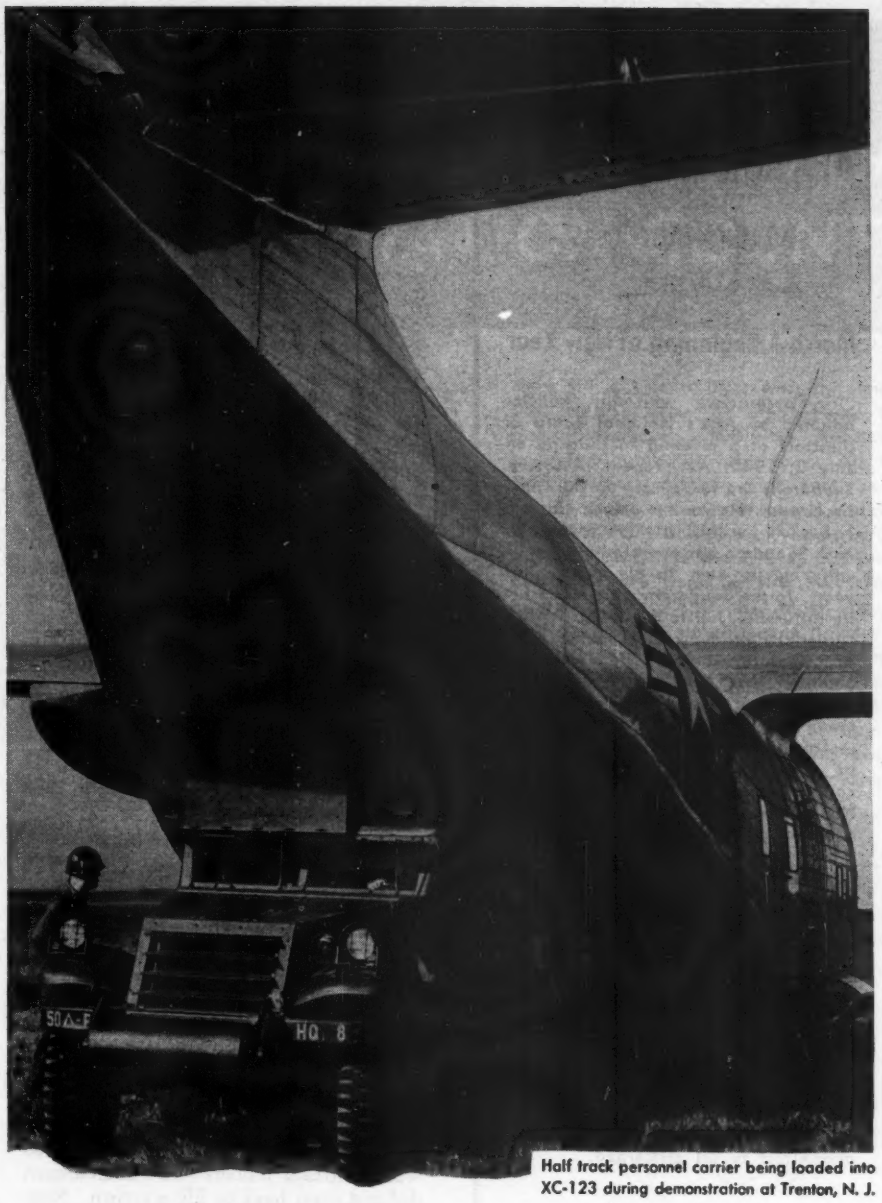
Briefly, Douhet believed that defense was relatively easy on land and sea but virtually impossible in the air. Conversely, he reasoned, offense is difficult on land, difficult on sea (except for submarine activity) and easy in the air. He points to the fact that there are no natural barriers in the air and that attacking planes can reach their targets by a multiplicity of routes and that the choice of targets itself is usually so wide that a defense would have to mass planes at each possible one—an impossible task in the long run.

As long ago as 1915, the Italian General championed the concept of strategic bombing and stated flatly that the *heavy* bomber was the only logical instrument for carrying it out. Indeed, Douhet's ideal air force is one made up almost exclusively of heavy bombers. Sigaud interprets Germany's failure to win the battle of Britain on the fact that they didn't understand the heavy bomber concept. As for Britain's success in defending their Island, Sigaud claims special circumstances—only one route of approach, limited number of targets, and lack of heavy bomber opposition.

In applying Douhet's principles to American conduct of the war, which brought good offensive results on land and sea as well as in the air, Sigaud points out that, unlike Italy, we are a rich country and in concert with our Allies, had the resources and manpower to overwhelm the enemy in *all* media.

Douhet concedes that if two powers with relatively equal air forces, neither having an initial advantage, slug it out toe to toe, the results might not prove conclusive, but he doubts that this would happen, since, he says, air forces are equipped to force a decision and should not be planned for use with the

(Continued on page 44)



Half track personnel carrier being loaded into XC-123 during demonstration at Trenton, N. J.

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AFA SQUADRON S.O.P.

SQUADRON OFFICERS—

—PLEASE NOTE . . .

March 1 Beginning of New Year

In accordance with the policies adopted by AFA's National Board of Directors at a meeting in Chicago on July 3, 1949, ALL, repeat, ALL AFA Squadrons are to operate on the same fiscal year, March 1 to March 1 . . . .

Reason for this is, that up to now, each Squadron has operated independently on its own fiscal or calendar year. To the Squadrons, this made little difference, but to the Wings and to National Headquarters, it makes a lot of difference. The old way meant that Squadron elections were occurring daily, that a constant check had to be made to keep Wing and National records up-to-date; new files had to be made daily and addressing mechanics were constantly being altered. No up-to-date roster of AFA leaders could be published.

The uniform Squadron fiscal year eliminates all this. Records will be up-to-date, procedures will follow a pattern, and considerably better service will be available to Squadrons because of the saving of effort and time in keeping non-changing records. This will also permit AFA Headquarters to mail a new supply of fresh materials and literature to all Squadrons as the new officers take charge.

This is a most important step in AFA unit activity and will certainly result in a big saving of time, money and effort to all concerned.

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A nominating meeting in January—

Big election in February—

Change of command March 1—

All Squadrons should have their new officers elected and ready to take office by March 1, or the very first meeting thereafter. Headquarters will forward each Squadron a special form for listing the *names, addresses* and *telephone numbers* of each officer and councilman. This form should be carefully and fully completed and *returned to Headquarters by March 31*. A nation-wide Wing and Squadron directory will be published in April—make sure your Squadron is listed.

MARCH 1—

THE SQUADRON NEW YEAR . . .

The Airman's Bookshelf

CONTINUED

thought they may prove inconclusive.

Under Douhet's master plan, there should be four branches of the military; Air Force for attack; Army and Navy for holding actions; and a branch specializing in defense of the homeland against aerial attack. This latter branch, he believes, will run anti-aircraft defenses and interceptor fighters, both of which instruments he has little faith in. Its job would be to keep civilian morale up by explaining to them that the enemy is getting worse than he gives.

It seems unlikely that Douhet's theories, propounded as they were in terms of needs of his own country, will be of much value to us. Indeed, his views have never really been accepted here. However, what he does have to say about unification seems sound and in this respect Sigaud has dovetailed them neatly with present day problems.

Income Tax Guide for Officers and Enlisted Personnel of the Army, Navy and Air Force

Military Service Publishing Co.
138 pp., $1.00

There is no tried and true method of keeping one jump ahead of the tax collector, so the next best alternative is trying to make the annual March 15 nightmare as painless as possible. For members of the Armed Forces, many of whom will be paying an income tax for the first time this year, we suggest a one dollar investment in this guide.

Prior to January 1, 1949, officers enjoyed an annual deduction of $1,500 while warrant officers and enlisted men did not even have to file a return. Now any man who earns more than $600 a year must let Uncle Sam know about it. This book has been designed to assist you in doing just that.

There are simple break downs of all new tax laws, telling just what types of income are deductible and which are not. And there are many sample forms provided to give your particular case an expert review.

Disaster Through Air Power

by Marshall Andrews
Rinehart & Co., $2.00

A former ground officer has written this book around the thesis that, "A war with Russia would be a land war from first to last." And in effect, calls for the US to discount the advice of the Joint Chiefs of Staff and the professional strategists like Marshall, Eisenhower and Bradley—all ground officers themselves—and build a huge land army which could, come war, slug it out man for man over the long road to Moscow.

The author, now a staff writer for the *Washington Post*, believes strategic airpower in World War II was "indecisive," again in contrast to the experts—the Strategic Bombing Survey called it "decisive"— and berates the growth of what he calls the "Air Force empire." The "disaster," as he presents it, would seem to be that the Joint Chiefs, the Congress and the people all disagree quite violently with his airpower views.

No truer words were ever written than those titling the book's final chapter: "One Man's Opinion."

Strategic Air Power—The Pattern of Dynamic Security

by Stefan T. Possony
Infantry Journal Press, $5.00

To evaluate a military instrument from America's point of view without considering Russia as the potential enemy is, as we have pointed out previously in this magazine, "like playing a football game without a goal line." By the same token, to appraise America's strategic airpower without considering intercontinental bombing is like playing the game without a ball. This book commits both these sins. Since reading it we have been given to understand that the author completed the writing job more than two years ago, which would help excuse his sins of omission. It doesn't, however, excuse the publisher for puting the book on the market in recent months—at an opportune time when interest in strategic airpower was hopped up over the defense controversy with a sales blurb which teases, "If you've been wondering who's right and who's wrong in the battle that has been raging over the use of American air power this book is 'must' reading for you." The book hardly fulfills that promise.

Nevertheless, Dr. Possony has contributed a worthy reference work by virtue of exhaustive research into and a broad concept of airpower. He presents an objective and comprehensive report on strategic bombardment in World War II, and answers some questions which have no doubt been bothering a lot of people, such as: how could our bombing of Germany win us command of the air when German aircraft production actually increased during the war? Dr. Possony, who teaches at Georgetown University and is billed by the publisher as a veteran "student of war", gives detailed support to the argument that "in the 20th century American airpower can, and should fulfill a function similar to that accomplished by British sea power in the 19th century."

Scholarly and distinctly middle-roadish in his handling of service roles and missions, he does his best to defend the battleship as a weapon of great present and future usefulness, and argues stoutly for the Navy's carrier aviation. Thus, it is not strange that when he tackles the $64 question—how to mesh adequate national security into our peacetime economy—he contributes little of consequence toward its solution.

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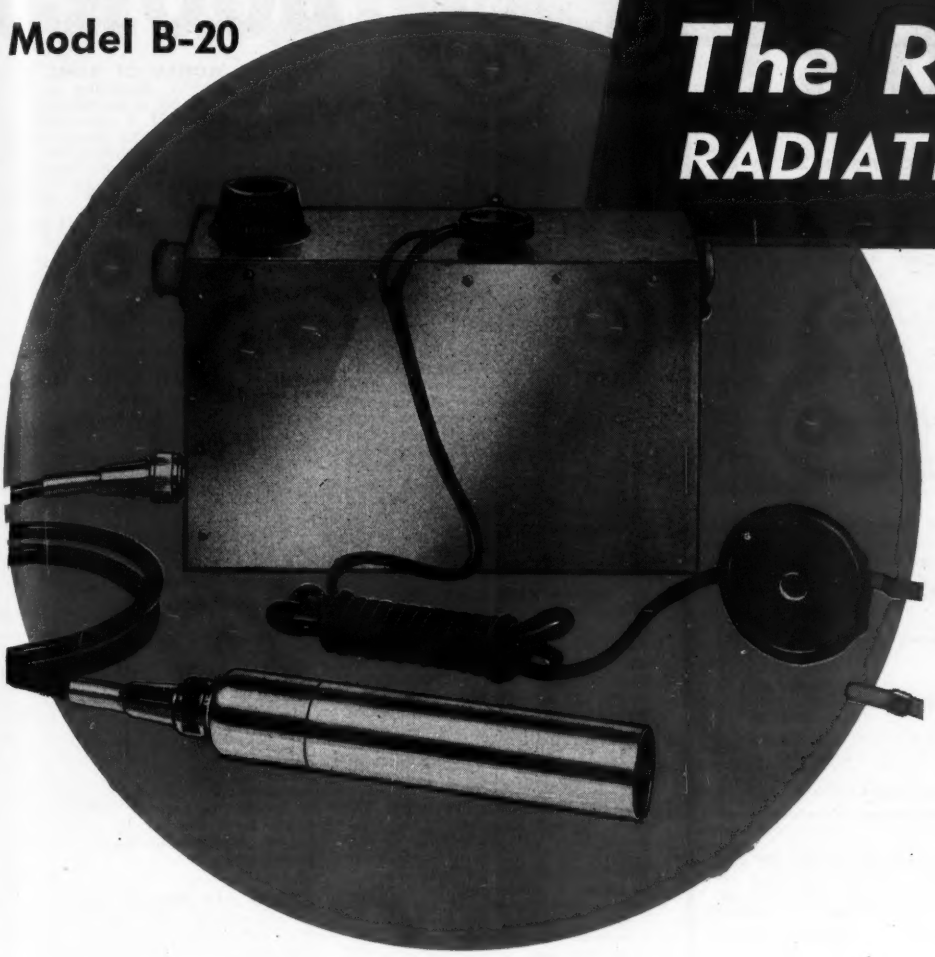

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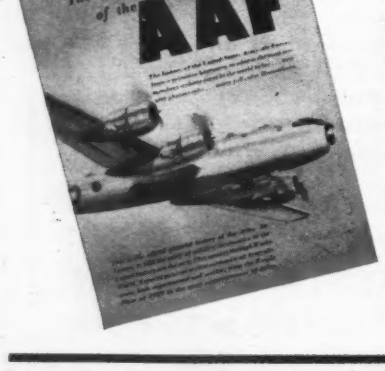

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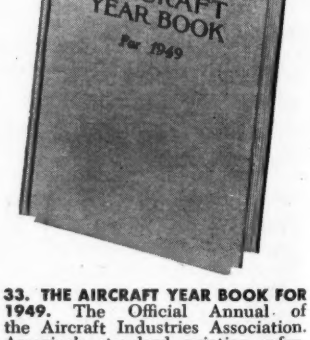

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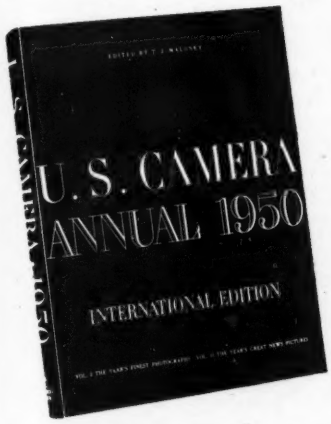

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program through to completion against all the odds, he also hit the military jackpot. It is not nice to contemplate what might have been the turn of events had any lesser man been at the controls of American airpower during those fateful years.

The password with which he bulldozed his staff in those days was that cocky, impudent and corny line: "The difficult we do immediately, the impossible takes a little longer." With General Arnold it was the order of the day. His memos to commanders across the world and his verbal directives to staff members across the desk left man after man shaking his head at the thought of what he had agreed to do for the Old Man. The Air Force was being run by men who were afraid to say "no." It got to the point where his demands were so impossible that his subordinates started passing along equally impossible orders to their subordinates, and on down the line, through an impossible network of impossible directives, until impossible jobs got done.

Eventually the White House, the War Department, the Congress and the people all felt the jolt of the bulldozer. But that his big, bold, brassy outlook had to first be implanted within his own Air Force is all too evident.

The Air Force in the immediate prewar years was handicapped, in General Arnold's own words, by "the cramped nature of our habitual thinking." In his book *Global Mission* he has explained: "We had been fighting so hard and so long to get the few planes, the gasoline, the pilots, the mechanics, everything we had, that at first, even after Munich, it was difficult to get my staff to adjust their minds.

He tells how he called his Air Staff together and explained that "critical conditions" in Europe made it necessary to prepare an air program for a global war, and asked them how many planes they would recommend as essential? Their estimates added up to a total of 1500 combat planes to meet American requirements all over the world. Goaded on by General Arnold, the staff made another approach on the problem, but in the end their estimates totaled only 7,500 planes. "I was shocked," General Arnold reports, adding that eventual factory acceptances during the years 1940-45 totaled 229,-230 planes. Those puny estimates of his Air Staff were the consequence, he concludes, of "thinking in small terms instead of looking at the big picture."

That the Air Staff, as late as the Munich period, suffered from "habitual thinking" and "small terms" is a warning to all who have a hand in shaping military policy. That General Arnold could free himself, and eventually the Air Force, from these afflictions, that he could rub out the Old and pursue the New in broad, bold sweeps of action—this was his great contribution to the Air Force of wartime, and it is his legacy to the Air Force of today.

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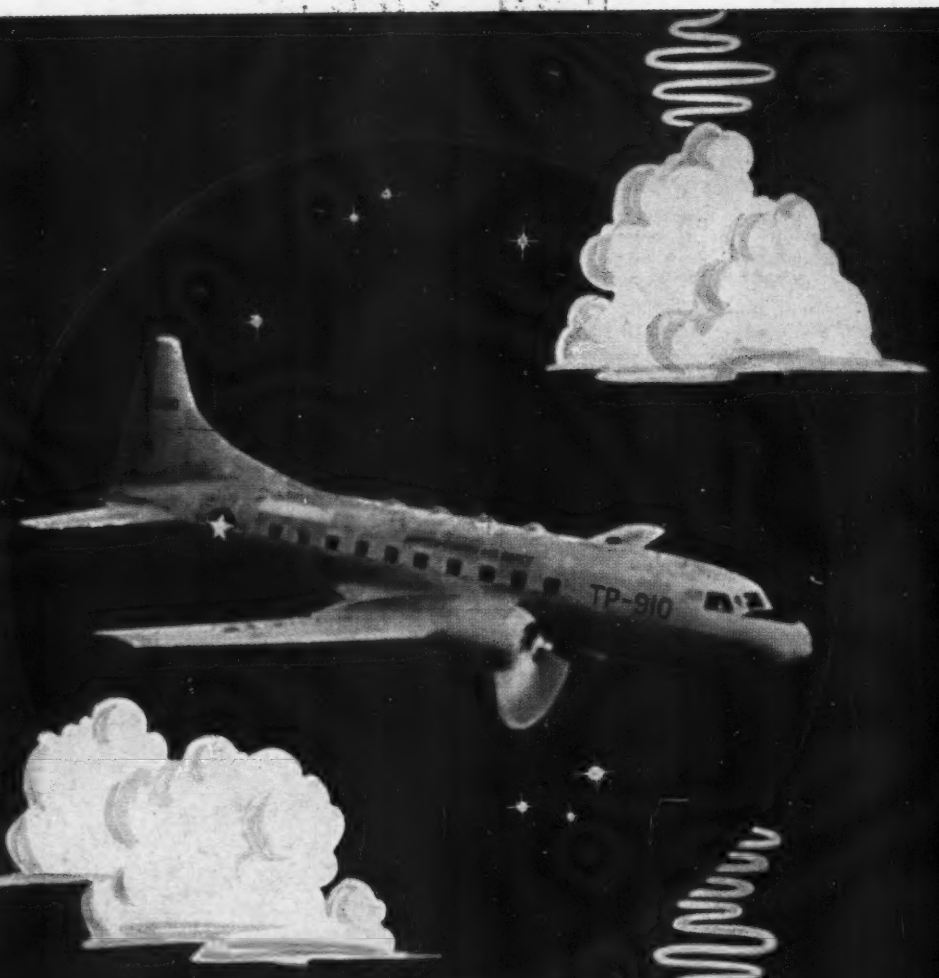

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